NEW ENGLAND FARMER

DEVOTED TO AGRICULTURE AND ITS KINDRED ARTS AND SCIENCES.

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SIMON BROWN, EDITOR.

THOUGHTS SUGGESTED BY JANUARY.

That our sons may be as plants grown up in their youth; that our daughters may be as corner-stones, polished after the similitude of a palace:

That our garners may be full, affording all manner of store; that our sheep may bring forth thousands and ten thousands in our streets:

That our oxen may be strong to labor; that there be no complaining in our streets.

Happy is that people that is in such a case.

Psalm CXLIV: 12, 15.

JANUARY, 1864! Happy, indeed, must be the "people that is in such a case." And there is no reason why *all the people* in the free States should not be in such a condition, except *our own imperfections.* He who created us, has *given* us all that can possibly be necessary to satisfy every physical want. An extensive and diversified country, teeming with the richest and most substantial productions, when generously treated. A varied and delightful climate, capable of bringing to perfection every grain and fruit that man can desire, or that is required to develope his highest physical powers. He may find in it whatever degree of cold or warmth his particular temperament may demand, and still see around him the most ample means for subsistence, and for mental and material progress. Everywhere the soil yields her increase, when wrought by skilful and industrious hands, while seas and forests contribute in a thousand ways to gratify his tastes and supply his wants.

What can we ask more! Only this,—the purity of Him who taught among the hills of Nazareth, and that our social systems be so perfected that none can be poor among us. The ancient Peruvians could not claim the exalted purity of which we speak, but their government, though perfectly arbitrary, made it impossible that any of its people should ever want for food, shelter or clothing. Under their laws, every one was *obliged to work.* If not with his hands, then with his head—in some way, certainly, so that every person who was a *consumer* must do something to produce supplies, or in some form promote the public welfare. Each head of a family had his special allotment of land, and he was obliged to cultivate it, when in health; if rich, his neighbors tended it for him, so that every allotment was productive. Government granaries were established, so that if flood, or drought or tempests destroyed the crops in any particular section, the people were supplied from the public granaries, until the sufferers could sow and reap their usual crops.

The inclemencies of the season lead us naturally to these thoughts, and we are pained with the reflection, that any should ever suffer for the common necessities of life, in a land so crowded with all that we need, and where all might enjoy it, if our social systems were so perfect as to compel all who consume to *produce,* in one form or another. We do not mean that this product shall be limited merely to that which goes directly to sustain life—for he who introduces order or economy, teaches the arts, or imparts any useful information, is a producer, and is entitled to God's sunshine and showers and to enjoy the fruits of the earth. We are radical on this point. It is wrong, in our opinion, to consume the earnings of others, when we *have had the ability,* and yet have failed in some way to promote the welfare of our fellow-man. Had we the power of the

"Grand Turk," our first edict should be that "those who are able, and will not work, *shall not eat.*"

With all the means at our command we ought to become the people spoken of in our caption, taken from the Holy Writ,—when "our daughters may be as corner stones,"—our "garners full, affording all manner of store"—"our sheep bringing forth thousands and ten thousands"—"our oxen strong," and no "*complaining* heard in our streets."

Let us, attentive reader, strive, this year, to do what in us lies, to bring about such a blessed state of society. It *might, exist* in January, 1865, if all were true to duty. Let integrity, sincerity, patience, reverence, faith and charity ever be our aim, and all that happiness intended for us in this mortal state will be attained. Let us remember that "truth, in thought and sentiment, leads to truth in action," and that what we do now is to have its influence on future ages of the race, as "men of all time, from the remotest antiquity, have done a part in making *our* condition and character what it is to-day."

JANUARY has its appropriate and important duties as well as the other months. They are greatly varied from the mid-summer or autumnal months, and they are all the more pleasant for that.

" 'Tis now the time from hoarding cribs to feed
The ox laborious, and the noble steed;
'Tis now the time to tend the bleating fold,
To strew with litter, and to fence from cold,
The cattle fed, the fuel piled within,
At setting day the blissful hours begin;
'Tis then, sole owner of his little cot,
The farmer feels his independent lot;
Hears with the crackling blaze that lights the wall,
The voice of gladness and of nature call;
Beholds his children play, their mother smile,
And tastes with them the fruit of Summer's toil."

HUMPHREYS.

We wish there were among us more cases of "the crackling blaze that lights the wall," for then there would be more voices of gladness, and more roses on the cheeks of our young women. In that exceedingly interesting book—"*My Farm of Edgewood*"—the author says: "The days of wood fires are not utterly gone; as long as I live they never will be gone. * * Coal may belong in the kitchens of winter—I do not say nay tothis; but I do say that a country home without some one open chimney, around which, in time of winter twilight, when snows are beating against the panes, the family may gather and watch the fire flashing and crackling and flaming and waving, until the girls clap their hands, and the boys shout in a kind of exultant thankfulness, is not worthy the name." We wish that in every farmhouse this beautiful picture might become a reality. In the long run, we think it would be economical, at least for the evening fire, when the whole family is usually assembled.

But we must pause. And, O, if we have touched one chord that will vibrate in sympathy with any poor sufferer, and lead you to protect, to administer to, or comfort with kind words, then our NEW YEAR'S salutation will not be in vain.

FORMOSAN TORTOISES.

A list of fifteen species of reptilia has been contributed to the Annals of Natural History by Mr. R. Swinhoe her Majesty's Vice-Consul at Formosa. Three living tortoises (Emys Simensis, of Grey) have been presented to the Zoological Society, and are now exhibited in their gardens. Other dead specimens haae been deposited in the British Museum. We give a few notes respecting them. The Trionyx Simenis is a tortoise with a long projectile neck and very sharp teeth. When once it seizes an object it is with the utmost difficulty that it can be prevailed upon to let it go. The Chinese boil it into sonp, and esteem it a great delicaey. Another tortoise, the Cisto Clemmys Flavormarginto, is the prevailing species about Tamsuy, north-west of Formosa. Mr. Swinhoe frequently observed it in ponds about the rice-fields, with its round back showing above the surface of the water and its head peering out. At times several might be seen together on the tops of stones in the water, basking motionless with limbs extended. On being alarmed they would shuffle off the stones with all the energy in their power, and, plunging into the water, sink immediately. If the observer kept quite still, after the lapse of a few seconds they would again appear on the surface. The green turtle of Europeans (Chelonia Virgata) is of frequent occurrence in the warm waters of the Gulf Stream, east of Florida. The fishermen regard it with great reverence as an emblem of longevity. When accidentally entangled in the fishing-nets, it is carried to the nearest large town and exhibited for a short time. It is then usually purchased from its captors by some well-to-do native, who has a few "good words" carved on its back, in company with his own name and the date, and fills in the inscription with vermillion. The animal is then decked with ribbons, and carried in a boat with much ceremony out to sea, where it is consigned with state into its native element. Some very large specimens were brought from Sawo to Tamsuy. They were kept in a boat filled with water during the day; in the evening they were brought out on the deck of a vessel. One of them for several consecutive evenings at eight o'clock precisely would commence scratching the deck with her fore flappers, and then set to laying eggs, usually twelve in number. She would then turn round, and commence pushing and scraping with her hind flapper—evidently the manœuvre she was in the habit of going through on the sandy beach: first scratching a hole for the reception of the eggs, then filling it up. Mr. Swinhoe had one alive for some time in the yard of his house. It used to he motionless in the rain puddles, with only the tip of its head uncovered. When the thermometer fell below 50° it would sally out of the water and not return till it grew warmer.

For the New England Farmer.

A HINT ABOUT DRAINING.

MESSRS. EDITORS:—Enclosed is three dollars to pay for the *Farmer* for two years. It is uncertain about my living to need it; but as the success of agriculture is my highest earthly object, I do not know of anything better than to do what I can to sustain the *Farmer*, both by word and deed. I have told of my success in farming, and will now tell of one mistake which I think others may profit by avoiding.

I have a piece of land containing seven or eight acres, lying in the form of a basin, which, when I was a boy, was chiefly covered with large bushes and brambles, except about one acre in the middle, which was too wet to bear bushes. My father had a shallow ditch dug through the middle of it before I took the lead. I have since cleared the whole and underdrained one half. My mistake was, in not digging the main drain deep enough. I hope that those who come after me will be able to dig it one foot deeper, for the ditch I have at present only drains the shoalest of it, about fifteen or eighteen inches, and I would not recommend any one to drain less than two or two and one half feet. I have experienced so much benefit from my imperfect draining, that I would advise all who have land that needs draining, to underdrain so far as they are able. I would give advice similar to that of the Dutchman to his son, "Never to run in debt; but if he did run in debt let it be for manure." I would say let it be for underdraining. T. HASKELL.

West Gloucester, Dec. 13, 1863.

REMARKS.—Friend HASKELL is one of the oldest subscribers to the *Farmer*. He is now, we believe, past "threescore and ten," but still full of interest in the progress of the art which he loves so well. That he may read and be edified, and write and edify others for many years to come, is our sincere wish.

For the New England Farmer.

THE WAR AND AGRICULTURE---THE MOON---PREMATURE BIRTHS.

As I ride along the road I have noticed that not one-fourth as much land is plowed this fall as usual. If there is little land plowed I am afraid we shall fall short of products. Plow one acre to help support our army in the field. If you have not the necessary men's help call on the mother or sister to give you a helping hand. They had rather do it than let the sons of the country suffer. We read that in the time of the Revolution the mothers, with their babes nestled down by the side of the bushes, toiled from sunrise to sunset in the fields! All men to war, none to farm. Let that cry be an untruth, or else let those mechanics who are building shops calculate to put their hand to the plow in the spring.

The old women used to talk of planting in the right time of the moon. I never thought that there was anything in it, but this year I saw that which ought to make me a believer. I saw bean vines that were planted near the full of the moon, and not ten feet distant, on the same kind of soil and situation, were a lot planted on the decrease, and about the same time. Those which were planted on the growing, grew well and bore finely. The others did neither bear nor run to vines, but squat upon the ground.

I see that my theory in regard to premature births does not coincide with that of yours, but the reasons given by you, I don't see to hit or controvert my theory. I saw that a correspondent of an agricultural journal in England, considering upon the same subject, copies my article entire, and then goes on to say that I express his mind; that he for years has been inclined to the same opinion, but that he has of late become satisfied.

Now is the time to turn up the muck; the frost will take out the acid and fine it up; then in the spring tumble it over; if to plant after the seed is in, throw on ashes and lime in equal parts, but do not forget to put a little manure in the hill. S. P. M.

Dover, N. H., November, 1863.

For the New England Farmer.

METEOROLOGICAL RECORD FOR OCTOBER, 1863.

These observations are taken for and under the direction of the Smithsonian Institution.

The average temperature of Oct. was 49°; average midday temperature, 57°. The corresponding figures for Oct., 1862, were 50° and 55°. Warmest day, the 4th, averaging 64°; coldest day, the 28th, averaging 32°. Highest temperature, 72°; lowest do., 21°.

Average height of mercury in the barometer, 29.35 ins.; do. for Oct., 1862, 29.28 ins. Highest daily average, 29.70 ins. on the 29th; lowest do., 29.08 ins. on the 4th. Range of mercury from 29.04 ins. to 29.74. Rain fell on eleven days; amount of rain, 3.95 ins.; sixteen wet days and 3.52 ins. rain in Oct., 1862. There were two entirely clear days—on two days the sky was entirely overcast. A. C.

Claremont, N. H., Nov., 1863.

WINTERING BEES.

THE EFFECT OF ICE OR FROST ON BEES AND COMB.—When the bees are not smothered, this water in the hive is the source of other mischief. The combs are quite certain to mould. The water mould or dampness on the honey renders it thin, and unhealthy for the bees, causing dysentery, or the accumulation of fæces that they are unable to retain. When the hive contains a very large family, or very small one, there will be less frost on the combs,—the animal heat of the first will drive it off; in the latter there will be but little exhaled.

FROST MAY CAUSE STARVATION.—This frost is frequently the cause of medium or small families starving in cold weather, even when there is plenty of honey in the hive. Suppose all the honey in the immediate vicinity of the cluster of bees is exhausted, and the combs in every direction from them are covered with frost; if a bee should leave the mass and venture among them for a supply, its fate would be as certain as starvation. And without timely intervention of warmer weather, they *must* perish!—*Quinby's Mysteries of Bee-Keeping.*

SEEDING LAND TO GRASS.

In a former article, we spoke of some of the leading points bearing upon this important subject, and will now briefly introduce a few more, with such authorities as are at hand to sustain the opinions which we advance. We shall be glad if some of our intelligent correspondents will communicate their views, whether they agree with ours or not.

The transpiration of plants—that is, the parting with their moisture—is nearly confined to the day, very little taking place during the night, and it is much *promoted by heat.* Another effect of the grain plants, therefore, among the young grass would be to keep the whole field cooler and *more moist,* and consequently in the most favorable condition to live and grow. Under such circumstances, grass seed would seldom fail "to catch," as it is called, because it would be placed in a *warm* and *moist* position, and where the variations of temperature would scarcely affect it. The action of the plants, like that of the human system in health, would be regular,—not receiving nutritive influences largely at one period and losing weight at another, but steadily advancing in a healthful and vigorous growth. For "the quantity of moisture imbibed by plants depends very much upon what they *transpire.* The reason is obvious. When the vessels are once filled with sap, if none be carried off, no more can enter, and, of course, the quantity which enters must depend upon the quantity emitted." Checking rapid evaporation of the rains and dews, and preventing the plant itself from sudden changes of gain and loss of its moisture, keep it in a natural and healthy condition and secures success.

Another important fact goes to prove the beneficial influences of the grain crop upon the young grass. If the latter were sowed alone, the surface of the soil must be nearly bare for some days at least after the grass is up, and before it could grow sufficiently to cover the ground. If dry, hot weather should take place at this period, it would be likely to ruin the crop, because evaporation from both plants and soil would be very rapid.

It is well ascertained that the earth becomes heated much quicker and deeper under a bare surface, than under a sod, or where any vegetation is growing. From two or three experiments, "tried in the coolest and warmest spots that could be found, it was evident that the relative difference in the temperature was uniform, and that on a hot summer's day, the earth, six inches under surface in sod, was *eight* degrees cooler than under a clean, loose surface. This fact has a direct bearing upon the question at issue, viz., *whether it is best to sow grain with grass seed, in laying down grass lands, or not?*"

Few crops that we produce are more delicate and tender when young, than most of our grasses. They are small, quite succulent, and liable to be injured by various causes, so that any cheap and efficient mode of protecting them will prove of no small consideration to most farmers. The failures in seeding this crop make up an annual heavy aggregate of loss.

In a former paragraph we recommended the laying down of grass lands in August in the midst of standing corn. A clear writer, and a practical farmer, in an article upon "*Corn, as a Shade for Fruit Trees and Plants,*" says: Last spring I planted about half an acre of strawberries. After the second hoeing, May 23, I planted corn between all the rows, using a variety called Early Six Weeks. I planted also one hundred Concord Grape Vines, between the rows of which I planted, May 25, Canada or Eight Rowed Yellow Corn. * * The drought this year was of short duration, about four weeks, but unusually severe, owing to the intensely hot weather. My strawberries suffered to some extent, but comparatively little. Of my grapes, two or three were injured, but not more than one, I think, will be lost, while the year before I lost at least twenty per cent. not shaded by corn! On a little more than half of a newly planted patch of raspberries I planted King Philip corn between the rows. None of that portion of the raspberries was injured, but about half of the rest died. Dwarf apple trees, planted last spring on a gravelly soil with south western exposure, have done much better where they were shaded by small corn than where the ground was planted to potatoes. * * From my experience and observation, he adds, I am led to the conviction that for this climate the cultivation of corn among fruit trees, grape vines, raspberries, strawberries, &c., the first summer after they are set out, is a practice of very great value.

A few more points present themselves for consideration, which we will defer to another paper.

WHAT WILL BECOME OF AGRICULTURAL SOCIETIES?

This question, and the following paragraph in reply thereto, closes an article on the subject of the late organization of the "Illinois Wool-growers' Association," written by Mr. Blagden, one of the editors of the *Rural New Yorker.* He regards this as a movement in the right direction. It is no longer enough that farmers—as a class—should combine; each specific interest must have its specific organization, as is the case with the different branches of commercial and mechanical business. And this, in the opinion of Mr. Blagden, is what will become of our old Agricultural Societies. He says:

The mission of these societies is ended. Their work is done. They have been pioneers of pro-

gress. The wilderness has been cleared of its rank growth of heavy timber. Nothing remains but the stumps in the way of the progress of each class of husbandmen. These must be cleaned out by a different process. The way must be cleared for the use of the reaper. The *age of machinery* is at hand. And the stimulus necessary ten years ago is no longer needed. Miscellaneous exhibitions do not do the work which needs to be done. They do not yield the nutriment required. The field is too large. Each class must concentrate its power to remove the peculiar obstacles in its path. Agricultural societies and their exhibitions do not do this. They stimulate skill and labor, and show the results of their application. But they control nothing; do not dictate to anybody; have no positive influence in politics and in shaping public policy. The time has arrived when the relations of the different industrial classes in this country, to each other, and to other classes, demand a different condition of things—demand combination. And, while I do not profess to be a prophet, nor the son of a prophet, I believe that the days of the usefulness of these State and County organizations are numbered—that the seeds of disorganization are sown in them—that from their dissolution will spring up new combinations and powers of a character indicated above.

For the New England Farmer.

LITTLE THINGS.

Or, a Walk in my Garden.

While surveying my little garden, I am sometimes led to doubt whether even a kitchen garden is profitable. It costs me so many hours to cultivate a bed of carrots and beets—so much weeding is necessary—so much back-aching work, that I am led to say,

A Garden, or no Garden?

The old proverb, "Buy all and spend all, just meets me every time I think of abandoning my garden and buying what I want. I find, too, when harvest comes, that when I collect together my vegetables into my cellar it would require quite a little sum of money to purchase as much.

"Land," says Emerson, "is bad, no land is worse." Just so have I concluded in respect to my own garden. Then there is something else; my humble garden seems more pleasant to *me* than the most expensive garden in the land belonging to another. Here is a row of plum trees, grafted by my own hand. Every other year I may expect a bountiful supply of luscious fruit. There is a rough trellis of grapes. They look most agreeable to the eye. Their very luxuriance seems to betoken thrift. The young apple trees growing here and there look more expansive every year.

Now I do not want to spend a mere negative state of existence for the sake of getting through the world as easily as possible. This world has its positive pleasures, and why may not I enjoy them? I must then strive to have something of my own. The idea that I have a little spot of the latitude and longitude of this world, which I can call *my own*, serves to elevate my manhood.

While walking or working in my garden I am as free as anywhere from evil thoughts that are so apt to disturb one's peace. I know of no better place for meditation, and the only palliative I can find for Mother Eve's weakness is the fact that she had had no previous experience of the wiles of the enemy of all peace.

A Sickly-looking Apple Tree.

I have just been tearing out by the roots a sickly-looking apple tree. Labor spent on such a tree is thrown away. If a young tree has a host of sprouts coming up around it, the sooner a good healthy young tree takes its place the better. A sickly tree will grow worse and worse every year, while a healthy tree will become better.

Rotation of Garden Crops.

There are some strange anomalies in gardening, in spite of all theories. I knew a man who had sowed his carrots and beets on the same spot for forty-five years. It was naturally an unpromising soil, composed of a coarse gravel, but he always succeeded in raising very handsome crops on the same spot till the year of his death. The truth is, that a generous supply of good manure will render almost any soil productive, if it be well drained. Some one will say, "Who did not know this before?" yet how few really practice it!

For the New England Farmer.

HINTS FOR THE FALL.

Mr. Editor:—Methinks I hear you say, as you glance at the subject, that we have had enough of this of late. I admit the truth, that nearly every agricultural paper I have seen for a month has had some of these hints, but they all tell us the same thing, and what every farmer of ordinary understanding already knows, viz: that such and such crops should be taken care of before freezing, &c. Now we all know that, but we do not all know the *best way* of taking care of these things, in order to have them keep in the best possible manner.

It is the common practice for farmers to throw their potatoes, beets, turnips, and the like, all into the cellar promiscuously, and then throw the cabbage, cauliflower, &c., on top of some of the rest, and leave them there to rot, if not used in a short time. By using a little care in storing such things they may be made to last a much longer time, and be kept in a far better condition than is ordinarily done. Every one knows how much more palatable a fresh vegetable is than one a little wilted; consequently, the nearer we can keep vegetables to the state they are in when first taken from the ground, the better they are. Potatoes keep best when buried in the ground, but most people have cellars large enough to keep all their potatoes, especially in Eastern New York and the New England States, and any plan by which they can be kept as fresh as possible will be acceptable to many.

I have experimented of late years in keeping potatoes in the cellar, and find that the best way I can keep them good and fresh for the next spring and summer's use, is to make a brick partition in one corner of my cellar for a potato bin, putting the potatoes on the ground and keeping the light entirely from them. I have no window to it, and no light is ever allowed to strike the potatoes after going into the bin, except candle light. I take them in as soon after digging as possible. The next best way is to take flour barrels without any heads, set them on the ground, fill them with potatoes and cover with sods. In either case the

cellar bottom should be dry, but not cemented.

Apples should be kept in bins—not in barrels. The bin should not be over three feet wide, so that a person can reach across it to sort the apples, which should not be over six inches deep in the bin. The bottom should be made of slats 1½ inches square, and one inch apart, which will give a free circulation of air through the apples. If picked with care, and placed in the bins without bruising, and occasionally sorted over during the winter, picking out all that are decaying, a few bushels of apples will last a large family a great while.

If all who have to buy apples would follow this plan, they would not need to buy a third more than they expect to use, in order to make up for the loss by rotting. Onions keep the best in bins the same as apples, and should be placed in the driest part of the cellar.

Beets and turnips for the next spring's use may be kept in sand and retain all their freshness. Take two boards and put them together in one corner of the cellar bottom so as to make a bin two, three or four feet square, as circumstances require, and keep them up by driving some small sticks into the cellar bottom; then a layer of beets and cover with sand; then more beets, and so continue to do until enough are put in.

A cellar must be kept very dry to keep cabbages without decaying, more or less. The best way of keeping it in the cellar is by hanging it up to the sleepers as it is drier there than nearer the ground. For spring use, dig a trench one foot deep on a dry knoll, and running up and down the hill, so that the water may run off; lay in some slabs or rails to keep the cabbage off the ground, then pull the cabbage and lay them, heads down, on the slabs; put slabs or boards over, and cover with dirt, flax shives, straw, or anything to keep them from freezing. If covered with straw, they can be got at in the winter, but they must be covered very deep to keep out the frost. And here I would remind those that like good cabbages that they should save their best cabbage for seed; set it out, head and all, taking care not to have any other cabbages or turnips of any kind go to seed within twenty rods of it, as they most assuredly mix. It is my candid opinion, that what is known of club-footed cabbage is caused by raising the seed in close proximity to turnips or ruta bagas. Squashes and citrons should be laid up from the ground, and handled without bruising. Cauliflower may be set in a trench in the cellar, or put in one out doors like cabbage, only reversing them, and putting them in as they grew, then cover so as to keep from freezing. Parsnips may be kept the same as beets, although if not wanted until spring they may be left in the ground.

Cellars should be kept as cool as possible and not freeze, as all kinds of vegetables and fruit keep better in a cool cellar than a warm one. Windows should be left open in cellars as long as possible, in order to keep the air pure, as impure air will cause vegetables to decay. A good thermometer for a cellar is a dish of water placed in the coldest corner of the cellar, and as long as that remains unfrozen there is no danger, but if it freezes, the windows may be closed. Cellar windows should always be covered with wire cloth to prevent vermin from going in.

New York, Oct., 1863. AGRICULTURIST.

For the New England Farmer.

AGRICULTURAL COLLEGES.

Several years ago the subject of agricultural education was somewhat fully—at least quite freely—discussed in the columns of the *New England Farmer*. The liberal grants recently made by the General Government to the several States to promote agricultural and mechanical education, have given a new interest to the subject, and it becomes all for whose benefit the appropriations have been made, to inquire what kind of institutions shall be established, or what disposition shall be made of the funds thus entrusted to the respective State authorities. My own views are so well expressed by a writer for the *Country Gentleman*, that, with your leave, Mr. Editor, I will borrow his language:

"If an agricultural college is to be a college for the purpose of teaching agriculture, it must fail; because agriculture is neither a science nor an art, but a handicraft or trade. As well establish colleges to teach shoe-making, or house-painting, or cotton-spinning, as to teach agriculture. Scientific agriculture, as it is called, cannot be said to exist as a science. It is aimed at and hoped for, but until analytical chemistry has been carried to a much greater perfection than at present, it must continue to be among the things hoped for, and not one of the things to be taught in colleges. Analytical chemistry discovers no difference between the components of cotton and sugar. Even in the common analysis of water, one of the most eminent chemists of New England now confesses that the method hitherto pursued has been all wrong. If scientific agriculture is based upon the idea that by a knowledge of the component parts of vegetable products, added to a knowledge of the component parts of soils and manures, a given vegetable product may be obtained, very much as a cook makes a pudding by compounding the articles according to her receipt, the idea may be a very pleasing one, but while the fact is that chemists are as yet able to analyze vegetable products only in the rudest and most elementary manner, the idea cannot be carried into practice. What good farmer ever derived any benefit from an analysis of the soil? Is it not admitted that chemists can detect no difference between some of the most fertile and some of the most barren? Something may be taught of botany and the physiology of plants, but if agricultural colleges are to graduate a parcel of young men with a smattering of chemistry, a touch of botany, and an inkling of vegetable physiology, who think themselves good farmers, agricultural colleges will be a nuisance, because they will increase the great defect of American education, superficial knowledge. Scientific agriculture stands to-day with phrenology, and biology, and magnetism. It is an undeveloped theory, not a science. Of practical sciences those only can be taught which admit of accumulated knowledge of facts leading to theories, which again are proved by the facts. But the known facts of agriculture are of the simplest kind, and discovered themselves for the most part while Adam delved. The theories of scientific agriculture are not yet proved by the facts.

"Agricultural colleges then must simply be high schools for farmers. What makes a good farmer? The same qualities which make a good mechanic, or man of business—intelligence, judgment and industry. Can a school teach these to its pupils?

To a certain extent, and indirectly, it can; but as it is the object of all schools to do so, your object and means will be the same as those of other good schools. If you wish to teach young farmers to know when they know a thing, and when they do not, you will not put them through a course of agricultural chemistry, for the result would probably be a persuasion that they knew something of that of which they knew nothing at all.

"If then the noble endowments of Congress are to result in anything but a delusion and a snare, let those who are to direct the organization of these colleges pitch their profession low, and the results will be higher. If the colleges turn out well drilled lads, thoroughly grounded in an English education, knowing something of surveying, book-keeping, and mechanics, with such lessons in farming as they may learn by example and practice on a good farm, it will be well. Such boys will have a better education than George Washington. But if they graduate youths who think they know something of vegetable physiology, agricultural chemistry, and the theories of Liebig, they will merely produce a considerable number of badly educated men, who are worse than uneducated men, because they use their common sense less, and are more conceited. D."

As a "coincidence" that attracted my notice, the same paper (Co. Gent., Sept. 17, 1863,) in which the foregoing communication was published, contained also the commencement of a review by Prof. S. W. Johnson, of Yale College, of Liebig's latest and most elaborate work—"The Natural Laws of Husbandry,"—in which, it is claimed, the learned, and world-renowned German has given to the public his mature views on agriculture, after sixteen years of experience and reflection. Here if any where, it would seem, we might expect that the "Science of agriculture" must be embodied and illustrated. We find, however, that Prof. Johnson cannot get over the 4th page of the first chapter without complaining that Liebig assumes as uncontroverted the doctrine that plants excrete matter into the soil, while Prof. Johnson shows that this doctrine was long ago successfully controverted, and says that there are no known facts to support the theory.

Of another of the assumed facts of Liebig's "Natural Laws of Husbandry," Prof. Johnson remarks: "This is no demonstrated fact, but a purely theoretical inference, and a hasty one at that."

Another assertion of Liebig, Prof. Johnson characterizes as "one of the loose statements, 'glittering generalities,' whose ultimate effect on the reader is injurious."

Of still another statement of the distinguished German, Prof. Johnson says: "This statement would be nearer true were it considerably qualified."

How would these men harmonize as teachers in an Agricultural College? And if such men as Liebig and Johnson must be excluded, who shall occupy our embryo "chairs" of scientific agriculture?

These disagreements of the Doctors go far in my mind to confirm the conclusion that "the theories of scientific agriculture are not yet proved by facts," and, consequently, that "scientific agriculture, though aimed at and hoped for, cannot be said to exist;" therefore it cannot be taught in colleges.

With one more reference to the review of "The Natural Laws of Husbandry," we close this article. On page 28, it is said:

"A proper knowledge of the radication of plants, [starting and growth of roots,] is the groundwork of agriculture; all the operations which the farmer applies to his land must be adapted to the nature and condition of the roots of the plants which he wishes to cultivate."

On this paragraph of Liebig's new book, Prof. Johnson comments as follows:

"There is great truth in the observation; but what are the facts which illustrate and enforce it? Where shall the inquirer look for that knowledge that is the groundwork of agriculture? * * The mountains of the moon have been studied far more thoroughly and successfully than the radication of plants, and we know more of the whereabouts of long-vanished comets than we do of this 'ground-work of agriculture.'"

The reader will please mind his quotation marks; as this is Prof. Johnson's language, not mine. Yet he does not say that he should expect the success of a college established to teach "the mountains of the moon." S. F.

Winchester, Mass., Nov., 1863.

For the New England Farmer.

CIDER APPLES.

This is a familiar designation, and yet it is not so easy to define what particular fruit is referred to. No one ever saw a tree thus labelled in the nursery, nor a plate bearing this title at any pomological exhibition; and a modern fruit grower would scorn the imputation of producing apples only fit for cider. But in almost every orchard planted by men of other days, there is left, here and there, a venerable tree (or offshoot from the original) that is pretty sure to yield most when grafted fruit is scarce; and you can best describe it by the title placed at the head of this communication. No trees looked more attractive in the time of blossoms, nor filled the air with sweeter fragrance. They fairly competed in this respect with the more pretentious "Baldwin," and "Seek-no-Further." When you come, however, to taste the result of all this fair promise, you will be very apt to conclude that apple blossoms are among the deceitful appearances. Some of the fruit tastes bitter-sweet, and some bitter-sour. Some sets the teeth on edge for a keener bite, and some puckers the mouth so as to prevent another bite. The only alternative is to let them be and rot, or gather them up and cart them off to the "press," which would contrive to reduce even "the apples of Sodom" to cider.

But within a few years, until quite recently, public sentiment has consigned them to decay, rather than to the hopper. Moreover, many an old cider apple tree has survived the old cider-mills. While the former have been suffered to cumber the ground, the latter have, one by one, shared the fate of all cumberers—so that apples, good, bad and indifferent, find it a rare privilege to go through the mill. Especially was this the case during the last year—not more remarkable for its abundance of apples, than for the revival of the old practice that cold water armies had so signally overcome. Everything that would press out the juice, whether operated by horse power, or hand, was called into requisition. The few old presses that had come down from a former gener-

ation only to harbor rubbish and vermin, were suddenly made to renew their youth and revive the savory associations of their best days. And in this year of general scarcity the cider apple tree is hardly less conspicuous for its abundant fruit, than for the attention paid to it. The ground beneath is no longer littered, nor the branches overhead bedecked with withered and decaying apples—but every fragment has gone to replenish the vinegar cask. Almost every prejudice seems to have gone with the apples into the hopper. Men of professed temperance principles, that shun the bar-room and distillery, are not ashamed to be seen patronizing the cider mill. Men, even, that have stood out from raising tobacco, fall in with grinding apples, for something sweeter than "filthy lucre." No matter if the orchard contains no tree especially set apart for this use, there will be refuse fruit enough from the choice varieties for at least one barrel, or ten-gallon cask. What is to be the result of this retrograde movement? Are we old friends of the temperance union turning traitors to this, if still loyal to the other? And if we live to see another Presidential campaign, will we carry the election on the strength of hard cider, as was that of the "hero of Tippecanoe?"

So far as the writer's own observation and experience go, one hopeful feature of this returning love for cider is, the general disposition to preserve the wholesome, palatable qualities of the beverage, and exclude the injurious. If hard cases will adopt this policy, they will let their hard cider turn to vinegar, sooner than turn it down their throats; and they would as soon get drunk on lemonade or ginger-pop. The question only is, how we can most satisfactorily exorcise the evil spirit from the cider barrel. Some have recourse to a preparation of lime—but this is very apt to produce a beverage "flat as dishwater." At any rate you are more reminded of acid lime-water, than of the pure juice of the apple. Others still cling to the old custom of adding mustard seed, or charcoal, to a given quantity of cider; but this oftener fails than succeeds. A surer expedient has been to filter the liquor through sand, and thus a mild, pleasant beverage has been drawn from the barrel late in the spring. Sometimes, without any treatment, cider keeps comparatively sweet till midwinter, as it is kept cool—and there are certain cellars where it never really can be converted into vinegar. But after a thorough trial, the writer would recommend the *heating* process, such as is applied in eastern countries to the juice of the grape, to check fermentation and preserve its sweetness.

It is a principle of chemistry that "the property of organic substances to pass into a state of decay is annihilated in all cases by heating to the boiling point." So it has been my practice, for two or three years past, to draw off several gallons of cider just in the midst of its fermentation, heat it to the boiling point, then quickly remove it from the fire so as to avoid the burnt flavor, and, while it is yet lukewarm, bottle and cork, and store it in the cellar. When freshly bottled, it tastes very much like cider fresh from the vat; but, by January, will have the sparkle and foam of champagne—yet very seldom bursts a bottle or forces out the cork. Cider thus prepared must not be confounded with that kept boiling till it ever after savors of the fire, nor associated with what is made entirely of sweet apples, to be boiled down to molasses for the old fashioned "sarse." It cheers but not inebriates; is a most grateful beverage to a fever patient or consumptive, and lasts well into the warm season, if properly put up.

The writer makes no pretensions to being a connoisseur in liquors, and cider has usually been regarded as too vulgar a beverage to elicit such notice. It has only been my aim, for one, so to prepare the article as to offer it as a beverage, without the slightest compunctions, to the strictest temperance man. Nor does it matter particularly what apples are ground for the purpose, provided they are ripe and only partially decayed. The crab apple and "flier" may best suit those who still yearn for the old, bottled, alcoholic drink; and a capital temperance beverage may also be produced from them. But the beauty of the foregoing preparation is that, while improved by a choice selection of fruit, it turns to good account those poor outcast apples that have been branded as only fit for cider. W. E. B.

Longmeadow, Nov. 2, 1863.

WEST'S IMPROVED PUMP.

Our own recommendation of this pump, together with the praise awarded it by Solon Robinson, Esq., in our issue of the 7th inst., has brought us so many inquiries that we have determined to answer them all at once, and to anticipate any others that may be made.

The pump is a combined suction and force pump, drawing water from wells thirty feet deep, and forcing it, through hose, if necessary, to any distance.

Three kinds are made for farmers' use, the house pump being somewhat ornamental in design, and intended to be set under cover. The well or cistern pump (Fig. 1.) is intended for yards and exposed situations. The plate, through which the piston-rod passes, is fastened firmly to the platform covering the well, the pump being underneath, so that the only parts of the pump above the platform are the rod, and the standard which supports the handle, and attached to which is the discharging pipe. The cut represents this with a hose attached. In winter a small hole is opened in this pipe below the platform, allowing the water to run out, so that there is no water above ground and no chance for freezing.

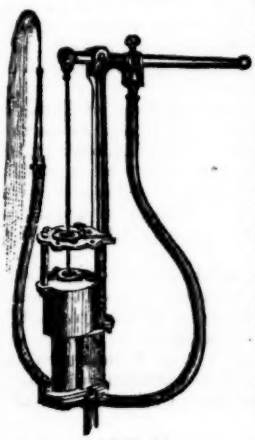


Fig. 1.

Figure 2 shows the pump adapted to a deep well. It is of course necessary, from the very principle of a suction pump, that the working part should be not more than thirty-two feet from the surface of the water, and where the well is deeper than that, the pump must be lowered till it is within that distance of the water. This cut shows the manner of suspending the pump, and also shows the pump in section, so that the arrangement of the valves can be seen.

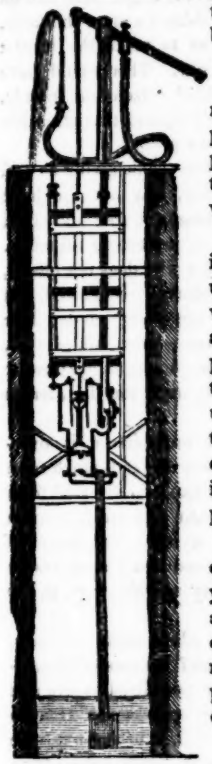


Fig. 2.

The pump is entirely of iron, with leather washers upon the piston, and these washers are the only things about the pump that can possibly wear out. It throws water at both the up and down strokes of the handle, and works as easily, when the discharge is not contracted, as it is possible for a pump to do.

If you want the water carried to a distance from your well, the pipe can be attached under the well curb, and the water carried by an underground pipe to the place of delivery.

As a force-pump, this is as good as a small fire engine, for with a hose attached, it will throw fifteen or twenty gallons of water per minute, to a distance of fifty feet from the hose.

This may prove a timely aid in case of fire, and the feeling of security which it gives is worth the cost of the apparatus. The pump is now sold by Calvin Horton, agent, at No. 26 Union Street, Boston.

WHEAT FOR A BARREL OF FLOUR.—The question is often asked, how much wheat does it take to make a barrel of flour? At the annual fair of the Dubuque County Agricultural Society, in 1860, a premium of three dollars was offered for the best barrel of flour made from winter wheat, and also the same for spring wheat. James Pratt & Co., of the Rockdale Mills, entered one barrel of each, accompanied with the statement that sixteen bushels of winter wheat yielded three barrels and 103 pounds of flour—at the rate of four bushels and fifteen pounds of wheat to the barrel. Of spring wheat, fifty bushels yielded eleven barrels of flour, being four bushels and thirty-two pounds per barrel. The wheat used was of a fair quality, and no more.

For the New England Farmer.

COVERING RASPBERRIES AND BLACKBERRIES.

It is the practice of horticulturists to lay down their raspberries early in November, and cover them with soil, to promote their fruit-bearing the next season. This is a good custom, as it is found by experience that they will hardly fruit at all unless they are somewhat protected from the severity of our northern winters. But the Catawissa variety does not need such protection, for, unlike all other kinds which are cultivated in this vicinity, its fruit is borne on wood *that is made the same year*. Other kinds bear on canes which *grew the year before*, and therefore need protection; but this peculiarity of the Catawissa raspberry is something of a consideration in favor of its more extensive cultivation. There is another peculiarity about the Catawissa, which deserves notice. It is, in a sense, *overbearing;* that is, it bears a succession of crops through the season. The September crop is nearly as prolific as the July, and the more valuable as such small fruits can hardly be obtained in the autumn at any price. Though the berry of the Catawissa is not as large as some of the other varieties, and though its flavor is by no means inferior, yet, for the reason here stated, it really claims a greater degree of attention than it has yet received from cultivators.

I believe it is not the general practice of fruit growers to protect their blackberry canes at all against the inclemencies of the winter. They are thought to be so extremely hardy as to need no protection, and besides they are very uncomfortable things to handle. They doubtless suffer much less than raspberries and strawberries for the want of protection; but if any fruit grower will try the experiment of covering them in the fall, he will be so much surprised at the great increase of his next year's crop, that he will hardly omit it again.

Waltham, Nov., 1863. D. C.

STRAWBERRY INSECT.—Heretofore this fruit has been exempt from the depredations of insects to a greater degree than most of our cultivated fruits. At a late meeting of the Fruit-Growers' Society of Western New York, the following remarks were made upon a newly discovered depredator:

H. N. LANGWORTHY had seen an insect within the last year that eats holes through the leaves and stems. (Mr. L. exhibited a strawberry plant the leaves of which were riddled by the insect.) It also attacks the raspberry. He feared it would prove a very destructive enemy to the strawberry.

JAS. VICK said he had sent this insect to an entomologist, and it belonged to the curculio family. It does not attack the strawberry till the fruit is formed, but after that it eats up the vines and destroys them. If the strawberry beds are renewed every year, this insect does very little damage.

By a vote of the Society, the Secretary was requested to send specimens of the insect to Dr. FITCH, the State Entomologist.

IN the Ionian district, Michigan, there were taken up, in the month of October last, about 9000 acres of land, under the Homestead law.

THANKSGIVING.

The passing months have brought us to another period of time, when it has been customary for the authorities to fix a day upon which a universal *Thanksgiving* may ascend to Heaven, for the unnumbered blessings which distinguish us as a people.

This period comes immediately after the autumnal harvest, when the earth has yielded her increase, and the husbandman has gathered that increase in joy, and his barns and granaries are full and overflowing. When his flocks gather around him from hill and vale, and wait with patient confidence for that food and shelter without which they would perish long before green fields and running brooks would again invite them forth. When the labors of collecting and securing the food for man and beast are ended for the year, man sees before him the rich fruits of that industry and skill granted unto him by the same Being who gave him the early and the latter rain, and who has promised that seedtime and harvest shall never fail.

Such was the season selected by our grateful forefathers, for a general outpouring of the full heart for blessings few indeed compared with ours. In gratitude to them for their pious example, and with profound homage to the Lord of the harvest, may our hearts be filled with all that sincerity, and all that deep and ardent devotion which inspired them in the midst of their forest home and severe privations.

Never had people greater cause for *thanksgiving* than we. Our harvests have been abundant. Our pastures have fed innumerable cattle and sheep to fatness, and our valleys and plains have teemed with herbage for their winter supplies. Bending corn and grain have smiled in numerous fields all over the land, side by side with ripening fruits of various kinds. No sickness has decimated our people, or convulsions of nature laid waste our cities and plunged thousands into sudden and untimely graves. Commerce has spread her wings, with humanizing tendencies, over the remotest seas; the arts have progressed as they never advanced before; and education was never more highly appreciated, or had more devotees in its walks. No man has looked for labor in vain, or failed to find its ample rewards. The most active trade pervades our cities, while a fully compensated and cheerful industry may be seen in all the rural portions of New England. In some of the manufacturing towns, labor may have been diverted from the mill, but has at once found ample scope in the field or in the family. None have "begged leave to toil," but have been sought for, and fully rewarded for every hour's application. Indeed, public and private charities have been greatly relieved from their usual calls, during the year that has just passed, in consequence of the activity of business and the constant demand for all kinds of labor.

On the Thanksgiving Day that has just occurred, every industrious and economical family in New England, with few exceptions, might have had its roasted turkey or pair of chickens upon the table, with such superaddition as to make the meal a bountiful and agreeable one. This would have required the attention of kind citizens and friends, in some cases, but in New England that attention is never dormant among our people.

The causes for open public thanksgiving as well as private, are innumerable, and not the least among them is the enjoyment of free and equal laws, bearing upon all, and protecting all alike. So lightly do they touch him who does not offend, that their very existence is scarcely recognized, and the most humble find no oppression under their operation. Our best powers, when all exerted, are too feeble to express the *thanksgivings* due for the blessings vouchsafed to us in this fair, fertile and free land!

We may be told that our picture is overwrought,—that a state of war demands much from us,—that the labor of our hands is diverted from our personal use, and that our sons are dead upon numerous battle-fields, or dying in the power of relentless and cruel foes,—and that "mourners go about the streets," in every neighborhood in the land.

While we are obliged to admit these sad facts, it should be one of our chief sources of thanksgiving and joy, that we are permitted to live and take a part in a reformation upon which Heaven smiles and will look upon with approbation,—the redemption of millions of our fellow-beings from an oppression which no terms in our power are adequate to describe.

Two years ago, the strongest mind was staggered with the question, "How shall this stupendous crime be stayed?" No power on earth seemed sufficient to cope with it. All the wisdom of legislation fell like futile shafts before its adamantine walls. Vice and cruelty stalked forth into the open light of heaven, demanding to establish a nation upon slavery as its corner-stone! It was not satisfied with this, but strove to destroy the glorious fabric reared by our fathers, and extend its sway over the entire land.

Thanksgivings! constant, sincere and profound, are due from all, that this terribly wicked power did not prevail,—that God raised up deliverers in our patriotic people, who have sacrificed, and are still ready to sacrifice property, health and life itself, to sustain our glorious Republic and its free institutions.

"Lives there a man with soul so dead,
Who never to himself hath said,
This is my own, my native land?"

So long as our *thanksgivings* are fresh and constant, so long will a pure patriotism burn in our bosoms, and love of country kindle a national enthusiasm and a spirit to defend the blessings which industry and integrity have secured.

Let, then, sincere *thanksgivings* go hand in hand with industrious and economical habits, with skill and energy to overcome all obstacles, with wisdom to devise and execute, and our country will stand before the nations of the world with a power unequalled, and spread its benign influences to the uttermost regions of the earth.

ADMINISTERING CHLOROFORM TO A HORSE.

Dr. Dadd, of the *Illinois Prairie Farmer*, gives the following account of Chloroforming a horse which he was treating for "spasms of the bowels," and which he finally cured, although this attack was so violent that the animal would throw himself upon the floor and tumble about in the wildest manner, and would kick and strike with fury if touched or nearly approached by any one.

"There seemed to be little hope for the animal, and fearing that he might either kill himself by violence or injure thore in attendance, I concluded to chloroform him, and thus put a stop to his dangerous performances; he had had the best of us about long enough, and now it was for me to show what science had in store for such otherwise unmanageable cases. I procured a mixture composed of four ounces of chloroform and the same quantity of sulphuric ether; next a sponge was tied on to a broom-handle; the latter enabled me to chloroform at a safe distance.

The patient did not seem to relish my mode of practice, he fought me some,—tried to strike and kick me, but he being temporarily blind I had the advantage of him. It was soon evident that the chloroform had begun to do its work; he gradually settled himself on the floor and was soon completely etherised. As it is dangerous to keep a horse under the full effects of chloroform any great length of time, I now removed the sponge and only applied it occasionally, slightly saturated, so as to insure a sort of incomplete state of insensibility. It was an encouraging sight to behold the once powerful and furious animal, now lying free from pain and deprived of the power to injure himself or those in attendance; and it is also gratifying to know that science ministers to the wants and necessities of the *inferior* as well as the *superior* orders of creation.

At the expiration of an hour, during which time the animal was more or less under the anæsthetic agent, he was allowed to rise; he gave himself a few shakes, seemed very much relieved, and much more tranquil."

CORN AND ROOTS FOR FATTENING HOGS.—In feeding dry corn, to fattening hogs, I have found the most beneficial results from giving one or two feeds a day of roots,—turnips or sugar beets. It serves them in the place of water, renders the corn less heating, and fed in this way a bushel of roots are fully equivalent for fattening to a bushel of corn fed alone.—*Albany Cultivator.*

GLANDERS.

In an article in the *Prairie Farmer*, on the subject of glandered horses, Dr. Dadd cites the following cases of the disease being communicated to the human system:

"Within the last quarter two veterinary surgeons—one residing in Walworth, and the other Wolverhampton—are reported as having died from inoculation of glanders. This terrible disease is not often seen in Scotland, but very frequently in England, and still more so in Ireland. From the latter circumstance, the malady is often found to be imported about the west coast of Scotland. London has always been rather renowned for the prevalence of glanders among omnibus, cab and other horses. A very strict supervision is maintained, and all glandered horses are destroyed when discovered; but nevertheless, we can state on good authority that the omnibus horses of London have suffered very severely from this disease, and do so still. The partial measures adopted by companies are not sufficient to eradicate it, and the "glandered night-team" is not altogether a thing of the past. The danger to human life is so great that we feel happy to seize any opportunity to urge the adoption of the most effectual measures for the suppression of any practice which tends to prolong the life of the glandered horse."—*Vet. Jour.*

Another case as published in the *Herald of Reform* is as follows:

"Mr. J. P. Burns, a grocer, in Baltimore, died a horrid death in that city, a few days ago, in consequence of poison communicated to his system from a horse afflicted with glanders. During the administration of medicine, Mr. B. thrust into the animal's mouth his hand, a finger of which had been previously cut, and the flesh laid open. Through this wound the virus was absorbed, and mortification supervened. A surgeon was called upon to amputate the deceased member. Perceiving, however, that the poison had penetrated to every portion of the unfortunate man's system, he declined performing the operation, and stated that no earthly skill could save his life. After lingering in great agony, death closed the scene.

STILL ANOTHER.—*Death of a Russian Lady from Glanders.*—The awful death of Madame Palesikoff, one of the most charming amongst all that bevy of charming Russian ladies, who sometimes gladden the winters of Paris, has created a terrible shock amongst the circles she so lately embellished by her presence. The unhappy lady left Paris but a short time ago, on a summer tour to Germany. While stepping from a door of the opera house in Berlin, to gain her carriage, she let fall one of her bracelets close to the pavement. Stooping to pick it up, she noticed at the time, laughingly, that "one of the horses belonging to a carriage standing at hand, dropped his head so close to her face, that he had touched her, and left a moist kiss upon her cheek." In a few days the unfortunate lady was taken ill with that most horrible disease, glanders, and in a few days more breathed her last, in spite of the attendance of the first physicians in Berlin, and every resource to be obtained by wealth, or by the ceaseless vigilance of friends.—*Court Journal.*

SEEDING LAND TO GRASS.

We propose to prepare one or two articles upon this subject. Its importance is attested in the fact that the grass crop in the New England States, for the year 1862, as near as we have the means at hand to ascertain, was nearly *one hundred millions of dollars!*

The practice of seeding down land to grass with a grain crop is universal in New England—that is, of sowing grass seed at the same time of sowing a crop of oats, barley, or other grain, and levelling and smoothing the ground in order to prepare it for mowing. Universal, however, as this practice is, the precise reasons for it have rarely been inquired into, or given. We have no recollection of ever seeing it treated in books or in newspapers,—but the *principles* which are applicable are frequently advanced by some of the best agricultural writers in this and other countries.

Last winter, during a discussion in which we took a part, upon the best modes of seeding land to grass, we made the remark that "the grain crop might, in some measure, protect the young grass, and give it an opportunity to escape drought, if it should ensue." This idea was objected to with considerable earnestness,—one person desiring to "enter his solemn protest against any *shade* theory."

Let us examine this point with candor and care, and try to learn whether the uninterrupted solar rays are always friendly to young grass plants, or, as in the case of many other plants which we are obliged to protect, they are not sometimes extremely hurtful. The question is *not*, what course of culture will produce the largest crops of grass, but, simply, what circumstances will best promote the germination of grass seed, and its *early* growth.

In the *first* place, all grain sown with grass seed—if the grass crop is the object sought—should be cut green—not allowed to seed—which leaves the surface free for the grass after it has got fairly rooted, and will not exhaust the soil as it would if allowed to mature its seed.

Secondly, oats or barley, start quick,—partially cover the surface, and thus prevent a large amount of *evaporation*, keeping moisture in store for themselves and the young grass, by absorbing it from the air, as well as exhausting it from the soil,—for the plants are living and breathing organisms, and a mutual action is continually going on between them and the soil. "They are first fed by the food which the root procures from the earth, and a part of the nutritive matter which is stored up in the seed-leaves. They feed especially upon the latter until the store is exhausted, and by the time this happens, they are clothed with leaves which are themselves *able to feed them* after the seed-leaves have perished." This is the language of Prof. LINDLEY,—than whom there is no higher authority,—and we cite it to show that the grain plants among the grass receive a *large amount* of their support from the atmosphere, and consequently, do not—in their *early* growth—exhaust the soil so much as they benefit it by their shade, and the moisture they bring to it from the air. At any rate, not so much as is sometimes supposed.

Both HALES and DUHAMEL—among the very highest authorities—say that branches imbibe moisture equally by either end; and consequently, the sap moves with equal facility *both upwards and downwards*. Mr. BONNET states that "leaves will imbibe *enough of water to support the vegetation* of a whole branch, and the leaves belonging to it." This does not look as though the leaves of the grain plants were made merely to *rob the soil!*

To illustrate: If the seeds of the birch, elm, maple or pine, are sown on a piece of plain or unsheltered land, a large portion of the plants—if they come at all—will perish; but if one goes to the forest, cuts trees and brush, scrapes away the leaves, stirs the soil, and sows the same kind of seeds *there*, they will not only come up, but under the genial protection of the surrounding trees and shrubbery, will come and grow and flourish in surprising numbers. This piece of soil in the forest, although *no mulching lies upon it*, will be found moist and soft, when the pastures in the vicinity are parched and barren.

It is the universal practice of the most intelligent farmers all over New England to sow some sort of grain with grass seed. It is to be presumed that this is not *entirely* because they desire the crop of grain, but in the expectation that the grain itself will be, in some degree, a protection to the young and tender grass plants. A very successful farmer states that he invariably sows three bushels of oats per acre with grass seed, and that he secures the best results under this practice, which has been continued through many years, because a successful practice. Some equally good farmers use a less quantity.

We sometimes sow grass seed among standing corn, in the month of August, and have never failed of securing good results under ordinary circumstances,—but always the most satisfactory *where the corn stood the thickest*, although on soil of the same quality and in the same position. This mode we recommend as a cheap and successful one.

It is stated that where coffee is raised, it is done under *the protection of trees* wherever they can be employed; that although the trees spread their roots far and wide, they are *condensers of moisture from the air* as well as extractors of it from the soil, and are of essential benefit to the young and tender plants. On the same principle, pasture

lands are much benefited by *occasional* shade trees scattered over them,—and we believe it is often admitted that such pastures afford more and better grass than those entirely bare of trees. That though the trees sap the soil, their other beneficial action upon it is more than balanced by the drafts they make upon the air itself. FOURCROY, another authority says: "In clearing up new lands, the trees on the summits of hills should be left standing. They attract the vapor that floats in the atmosphere, and the rains, and serve as *conductors* of that element *to moisten* the ground. By their shade they retain the verdure and the feed." This is exactly to the point. But there is a limit—they must not be too numerous.

Another advantage of grain is, that it *checks the currents* of wind, and thus prevents evaporation in a considerable degree. This point needs no argument, as all admit that hay dries much faster in a bright day *when there is a wind* than when it is still; the wind rapidly carries away the natural evaporation of the soil, which is continually succeeded by new moisture and carried off by fresh currents, and thus rapidly dries the ground. The grain tends to keep these currents from the young grass, and consequently a large portion of the evaporated moisture is kept among them. "The sun robs the soil of its moisture, and the wind robs it of its heat, two elements that have an important bearing on the resulting crops. . . . A single row of trees has a wonderful effect in checking the force of the wind, and a belt two rods in width will entirely check it and it will go over." There are some excellent examples of this kind in this country.

The difference of opinion entertained by farmers on this point seems to arise from the fact that *no credit is given to plants for the absorption by them of water from the atmosphere.* If they did not receive and impart it, how long would it be, in the absence of rain, before the soil would become utterly unfit to sustain a plant? LINDLEY says: "If the branch of a plant is placed in a bottle of water, and the neck of the bottle is luted [or made tight] to the branch, so that no evaporation can take place, nevertheless *the water will disappear*; and this can only happen from its having been *abstracted by the branch.*" This is just the action which we ascribe to the leaves of the grain plants as they stand among the grass.

He further says: "Since a plant does not perspire at night, and since its absorbing points, the roots, remain during that period in contact with the same humid medium [that is, the soil,] as during the day, *they will attract fluid into the system of the plant* during the night, and consequently the *weight* of the plant *will be increased.* In like manner, if plants in the shade are abundantly supplied with moisture at the roots, *they will also gain more than they can lose*; and as this will be a constant action, the result *must necessarily be to render all their parts soft and watery.*" The grain plants, while the grass is young,—keep the grass both shaded and moist, and the result follows which Prof. LINDLEY has described.

The above shows the *means* of keeping the ground moist, and the importance of such a condition of the soil must be clear to all. "As a general rule, therefore, we are authorized to conclude that the ground should be abundantly supplied with moisture when plants *first begin to grow*, and that the quantity should be diminished as the organization of a plant becomes completed." [Lindley, again.] Sir HUMPHREY DAVY, Dr. INGENHOUZ, SENOBIER, and others, all confirm the opinion which we advance.

ANIMALS FOR STALL-FEEDING.

In his last weekly report of the New York cattle market, Solon Robinson gives the following advice, on the subject of choosing animals for fattening, as the result of his observation and long experience among cattle:—

"We would never select an animal, particularly of the bovine race, to fatten, which had a long, narrow, contracted skull, particularly if the horns were puny, or abruptly bent, because such an animal is apt to be wild, and to have a weak constitution, and will not fatten like one with a broad face, with a full, capacious skull, with strong, evenly bent horns, with a neck thick at the face, and a wide throat; for such an animal has a strong nervous system, and always a good appetite, and not being wild will take on fat rapidly, and by its naturally quiet habits will retain it easily. An animal to fatten well must have a capacious chest. To bear transportation, it must have a strong constitution, and this is indicated by its strongly built form—its good back, loins and legs. Recollect that some men never grow fat. Some bullocks are just so; their nervous temperament wont allow them to take on fat half as fast as some others. Hence the phrase "aptitude to fatten." This should be studied, and then people would try to select such as have that aptitude, the first index of which will be seen in the head. If that is not good don't buy the animal, no matter how cheap it may appear. A slender-headed cow, with slim neck and puny horns may be a good milker, but you may be sure of a hard job when you try to fatten her for beef. The whole Alderney breed is proof of this. When other characteristics, at first view, appear favorable, look in the eyes. If they are small, deep-sunken, or dull, or staring, dark, and fiery, let that animal pass, and take one with large, open, mild eyes, with plenty of loose skin hanging from the chin, with a large muzzle, and open nostrils. Avoid slim heads and handsome noses, that is if you esteem slim ones handsome. Look well to the mouth, that it has strength and capacity to take its food. Be sure, too, to get "a good handler;" that is, one with a soft, velvety skin. Think of this and try experiments, and see how much easier one animal fattens than another."

CATECHISM
—OF—
AGRICULTURAL CHEMISTRY AND GEOLOGY.

BY JAMES F. W. JOHNSTON, M. A.

Q. *What is agriculture?*

A. Agriculture is the art of cultivating the soil.

Q. *What is the object of the farmer in cultivating the soil?*

A. The object of the farmer in cultivating the soil is, to raise the largest crops at the smallest cost, and with the least injury to the land.

Q. *What ought the farmer especially to know, in order that he may attain this object?*

A. The farmer ought especially to know the nature of the crops he raises, of the land on which they grow, and of the manures which he applies to the land.

I.---Of the Nature of the Crops he raises.

Q. *Of what parts do all vegetable substances consist?*

A. All vegetable substances consist of two parts, one which burns away in the fire, called the organic part, and one which does not burn away, called the inorganic part.

Q. *Which of these two parts is the greater in quantity?*

A. In all vegetable substances, the organic part is very much the greater. It forms from 90 to 99 out of every 100 lbs. of their weight.

Q. *Of what elementary bodies does the organic part of plants consist?*

A. The organic part of plants consists of four elementary bodies, known by the names of carbon, hydrogen, oxygen and nitrogen.

Q. *What is carbon?*

A. Carbon is a solid substance, usually of black color, which has no taste or smell, and burns more or less readily in the fire. Wood-charcoal, lamp-black, coke, black-lead, and the diamond, are varieties of carbon.

Q. *What is hydrogen?*

A. Hydrogen is a kind of air or gas which burns in the air as coal gas does, but in which a candle will not burn, nor an animal live, and which, after being mixed with common air, explodes when it is brought near the flame of a candle. It is also the lightest of all known substances.

Q. *What is oxygen?*

A. Oxygen is also a kind of air in which a candle burns with great brilliancy, in which animals also can live, and which is heavier than hydrogen or common air. It forms one-fifth of the bulk of the air we breathe.

Q. *What is nitrogen?*

A. Nitrogen is also a kind of air differing from both the other two. Like hydrogen, a taper will not burn nor will an animal live in it, but unlike hydrogen, it will itself not burn, and therefore does not take fire when brought near the flame of a candle. It is a little lighter than atmospheric air, of which it forms four-fifths of the bulk.

Q. *Do all vegetable substances contain these four elementary bodies?*

A. No, the greater number contain only three, viz: carbon, hydrogen, and oxygen.

Q. *Name some of the more common substances which contain only these three?*

A. Starch, gum, sugar, the fibre of wood, oils, and fats, contain only these three elements.

Q, *Of what substances does the inorganic part of the plant consist?*

A. The inorganic part of plants contains from eight to ten different substances, namely: potash, soda, lime, magnesia, oxide of maganese, silica, chlorine, sulphuric acid, or oil of vitriol, and phosphoric acid.

Q. *What is potash?*

A. The common potash of the shops is a white powder, which has a peculiar taste called an *alkaline* taste, and which becomes moist, and at last runs to a liquid when exposed for a length of time to the air. It is obtained by washing wood ashes (the ashes left by wood when it is burned,) with water, and afterwards boiling the liquid to dryness.

Q. *What is soda?*

A. The common soda of the shops is a glassy or *crystallized* substance, which has also an alkaline taste, but which, unlike potash, becomes dry and powdery by being exposed to the air. It is manufactured from sea salt.

Q. *What is lime?*

A. Lime or *quick*-lime is a white, earthy substance which is obtained by burning common limestone in the lime-kiln. It has a slightly burning taste, and becomes hot and *slakes* when water is poured upon it.

Q. *What is magnesia?*

A. Magnesia is the white powder sold in the shops under the name of *calcined* magnesia. It has scarcely any taste, and is extracted from sea water and from some kinds of limestone rock called *Magnesian* limestones.

Q. *What is iron?*

A. Iron is a hard bluish gray *metal*, which is manufactured in large quantities in our iron-works, and is used for a great variety of useful purposes.

Q. *What is oxide of iron?*

A. When polished iron is exposed to the air it gradually becomes covered with rust. This rust consists of the metal iron, and of the gas oxygen which the iron has attracted from the air, and hence it is called *oxide* of iron.

Q. *What is oxide of manganese?*

A. Oxide of manganese is a substance very much like oxide of iron, which occurs in soils and plants, usually in very small quantity.

Q. *What is silica?*

A. Silica is the name given by chemists to the substance of flint, of rock-crystal, and of sandstones.

Q. *What is chlorine?*

A. Chlorine is a kind of air which has a greenish-yellow colur, and a strong suffocating smell. A taper burns in it with a dull smoky flame. It exists in common salt in large quantity.

Q. *What is sulphuric acid or oil of vitriol?*

A. Sulphuric acid or oil of vitriol is a very sour burning, oily liquid, which is manufactured from burning sulphur, (brimstone.) It exists in common gypsum, in alum, and in Glauber and Epsom salts.

Q. *What is phosyhoric acid?*

A. Phosphoric acid is also a very sour substance, which is formed by burning phosphorus in the air. It exists in large quantity in the bones of animals.

Q. *Are all these substances to be found in the inorganic part of plants?*

A. Yes, they are to be found in the ash of all our usually cultivated plants.

Q. *Do all have the same quantity of ash when burned.*

A. No. Some leave much more ash than others. Thus 100 lbs. of hay may leave 9 or 10 pounds of ash, while 100 lbs. of wheat leave less than 2 lbs. of ash.

Q. *Does the ash of different plants contain all these substances in the same proportion?*

A. No. They exist in different proportions in the ash of different plants—the ash of wheat, for example, contains more phosphoric acid than that of hay, while that of hay contains more lime than the ash of wheat.

For the New England Farmer.

EXPERIMENTS WITH POTATOES.

The ground on which they were planted was a sandy loam, on the borders of a meadow, not naturally fertile, which had been for many years used as a pasture, but was so much grown up to bushes as to be worthless for seed use. In 1860 the bushes were cut and grubbed up and the land plowed, and in 1861 moderately manured and planted with corn. The crop being injured by an early frost, was not remunerative. In 1862 again moderately manured, it was planted with white beans and produced a good crop. Again, in 1863, the land was moderately manured and the general field planted with corn and beans. The piece experimented with was in an angle of the field, and contained, by actual measurement, 1440 square feet. It was marked out into rows by line, two feet apart; a slight furrow was made with a hoe under the line, and with the top of the hoe handle marks about an inch deep at the distance of from ten to twelve inches, were made in this furrow, in each of which was placed a single eye of a potato, cut out so as to be about the size of an old-fashioned copper cent; the eye placed downward and the cut side up, and covered by leveling the furrow, and over the whole was spread a mulching of meadow hay, which, when the shoots appeared above ground, was carefully removed from the shoots so as not to interfere with their upward growth; and excepting the pulling of a few weeds this was all the cultivation the crop received. They were planted the first week in June, and dug the first week in October. The yield was eight and a half bushels, which is at the rate of nearly 200 bushels to the acre. The variety, the Davis' seedling; the quality, first-rate; and when dug not more than ten of good size were thrown out as diseased.

In order to test the theory of Mr. Poor, and of the Long Island farmers, that the seed end of the potato is the author of "small potatoes," it was in preparing for this experiment cut off, and the eyes planted wholly taken from the large end. The result did not correspond with the theory. The quantity of small potatoes corresponded very nearly with that of a crop planted in the usual way, on land near by. This land, though much more highly manured, produced what was esteemed a good crop, but it was only at the rate of 156 bushels per acre. The plot above referred to, in one portion of it, suffered severely by being flooded by the excessive rains of July and August, by water flowing from higher land. If the yield of the whole plot had been equal to that which was not so flooded, the rate would have come up fully to 300 bushels per acre.

I will add one incident in regard to the potato rot. As already stated, when dug, the number diseased was small. They were not carried immediately to the cellar, but placed in a pile upon the ground where grown, and covered with meadow hay with which they were mulched, and with the vines, or tops of the potatoes, and thus remained about two weeks, during which time were several rains. When they were uncovered to be removed, it was found that the rains had not so penetrated the covering as to wash off the sand which adhered to the potatoes when dug. It was found that many of the potatoes showed small spots of white mould about the eyes, and on examination all so marked had the fatal disease. This mould I have no doubt is the fungus of the German theorists, and is the author of the mischief. It might be communicated from the ground or from the covering spread over them. The only remedy I should rely upon is early planting upon warm, well prepared land, so as to secure early maturity, and early digging and immediate removal from the ground.

J. B. H.

Nov. 2, 1863.

For the New England Farmer.

CURE FOR "HOLDFAST."

Mr. EDITOR:—One of your correspondents inquires in your last number if there is any cure for holdfast on the jaw of his steer.

Before we speak of the cure, we must understand the nature of the disease. Holdfast is a disease of the bone. The structure of all bones is cellular, that is, made up of small cells, filled with blood vessels and other animal substances. If you cut into a holdfast, you will find the cells increased in size, and the boney mass somewhat softened, the blood vessels enlarged, and more than the usual quantity of soft animal substances packed in the cells.

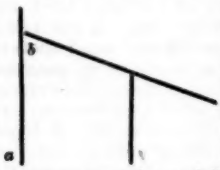
This change may be found extending through the external layer of bone to the marrow, or it may be found more superficial, involving only the surface of the bone. The same disease is found in the human subject, and the only remedy is to lay bare the bone, and with the saw, chisel and bone forceps, remove all the diseased portion, and then replace the skin and soft parts, which will soon heal.

Now that experience has taught that chloroform can be easily and safely applied to animals, and thus that operations that were formerly difficult, if not impossible, can be performed on animals without pain to the animal or danger to the operator, the veterinary surgeon performs many operations for the removal of deformities and the cure of diseases that were formerly deemed irremediable. I think the deformity in question can be removed by a surgical operation. It has been usual to turn such cases over to the butcher. But in a case like the one mentioned, rather than "spoil the pair," I think "M." would prefer having an operation done. The surgeon must cut freely, and remove all the bones in which the cells are enlarged, or show any indications of disease. If he will call on any young and enterprising surgeon, in his neighborhood, he will probably find him willing to undertake the operation. No other remedies are of any value.

Concord, Oct. 30, 1863.

A NEW TREE PROTECTOR.

We have examined a new contrivance, patented by Mr. Henry L. Ordway, of Ipswich, in this State, for preventing the injury occasioned to fruit trtes by canker worms, which is more simple than any other we have ever seen. The protector is entirely of tin, and the following diagram presents as well as we can do it, a section of it.



The protector is intended to be somewhat larger than the tree, to which it is attached by common cloth, extending a few inches up the trunk of the tree. This of course must be so tight that no worm can work its way under it. The worms passing down the protector, have a sharp turn to make, on the edge of the tin at *a*. Being heavy with the eggs they carry, few of them succeed in this, and those who do, have another obstruction to overcome in turning at the angle *b*. It is said that, on repeated trial, no worm has ever been known to pass this angle, but should any succeed in doing so, they must repeat the same operation near the outer edge of the protector, before they can ascend the tree.

The theory of the instrument taken in connection with the form and habits of the insect, is very plausible, and we are assured that in practice it is found to work perfectly. The inventor will give any further information in regard to it; and we hope that an effectual stop is at last found to the ravages of this pest.

THE WHEAT APHIS.

Prof. Glover, Entomologist to the Agricultural Department of the National Government, gives the following description of this insect which was very destructive last year in Maryland, and which threatened so much damage in various portions of the West. It is also mentioned by Dr. Fitch, in his report for 1860, as having been found all over the New England States, in New York, Canada, and Pennsylvania.

"*The Aphis Avenæ*, (Fab.) Grain aphis or plant louse.

Eggs probably deposited by the unwinged females in the autumn upon late sown wheat, &c., where they remain all winter, and hatch the following spring.

Insects live solitary at first upon the leaves and stems of oats, wheat, rye, &c., before the flowers or heads are formed; where, by means of their suckers, they drain the sap from the plant. At this time only females are found, which are of a green color, and bring forth their young alive. When, however, the flowers and heads are formed they discontinue their solitary habits and cluster in great numbers at the base of the chaff which envelopes the grain, and, inserting their piercers into the plant, extract the juices which should form the grain, causing the kernels to become more or less shrunken and light of weight. When feeding upon the juices of the young grain the plant lice change their color from green to a yellow orange and orange brown. These clusters or communities of plant lice at the base of each grain consist of winged females and their young; which last shed their skins several times before attaining their full size.

During the summer, female aphides give birth to living young, without pairing with the males. These young, when perfectly developed, produced young, likewise, without pairing, and so on for several generations.

The males appear later in the season, when they pair, the impregnated females flying to the late sown wheat, &c., to deposit their eggs which remain uninjured all winter and hatch the following spring.

For the New England Farmer.

WARREN.

This is the name applied to a township until 1834 called Western. Its name was changed to Warren, in honor of the patriot of Bunker Hill. It is situated on the Western Railroad, midway between Worcester and Springfield, and covers an area of 16,428 acres. It is quite hilly, and well adapted to grazing, being irrigated by the Quaboag River which furnishes power for several cotton factories. The well known Whipple Scythe Works are located here, although they are at present used for the manufacture of other implements than those required by the arts of peace. It is populated by a thrifty set of people, who point to their vacant almshouse as an evidence of general prosperity.

A portion of the farmers of Warren have, for the past twelve years, turned their attention to the production of milk for the Westboro' Milk Company. During the summer months they furnish one thousand cans per day, and in the winter season about eighteen thousand cans per month. The annual receipts for milk amount to about sixty-five thousand dollars. The present price is thirty cents per can. A farmer, who produces as much milk as any other in town, states that his cows average an annual income of *forty dollars* each. Neither cotton seed meal, oil cake, nor roots, have been used much in this region, the rich hill pastures rendering extra feed in summer unnecessary; and in winter corn meal is fed.

In addition to the demand for the Westboro' Milk Company, an immense supply is now required by the Lewis Brothers for their condensing factory recently erected at West Brookfield. But in spite of all this, there is still a surplus of milk in this region, and in consequence thereof there is now in progress a new enterprise to be called

THE WORCESTER COUNTY CHEESE FACTORY.

The extremely low prices which have been paid for milk during the past three years, and the steady advance in the price of cheese, have conspired to turn the attention of some extensive dairymen in the south part of Warren, together with others in the adjoining town of Brimfield, to the feasibility of establishing a factory for the production of cheese, similar to those now in successful operation in various parts of New York State, and in some localities at the West. Accordingly they

delegated some of their number to visit these establishments, and having been convinced of the simplicity of the plan, they immediately formed an association and entered upon the prosecution of the enterprise. They have now in the process of erection in the south part of Warren, one building 40 feet by 30, another 30 feet by 16, and also a drying room, two stories in height, 100 feet in length, and 26 feet in width. These buildings, together with fixtures, steam apparatus, etc., will cost $3000.

To carry out the plan, thirty dairies, comprising five hundred cows, have been pledged for five years, and it is expected that others will be added as soon as operations have been successfully commenced. This will give from 1500 to 2000 gallons of milk per day; and since it is an established fact that one hundred gallons of milk will give one hundred weight of cheese, the establishment is expected to turn out one ton of cheese per day.

The care of the factory will require the attendance of only four persons. A well has been excavated in a hillside near by, from which water will be carried to any part of the building. In order that there may be no waste, an extensive piggery is to be constructed, and one hundred swine will be fed upon the whey which the factory affords. The milk will be brought from the farms every morning, and the cheese divided among the proprietors in proportion to the number of gallons of milk furnished. Each cheese will weigh one hundred pounds, and will probably be packed in separate boxes.

At a large establishment of this kind seven miles from Rome, N. Y., cheese is manufactured at an expense of only one cent per pound, and is found to be superior in quality to that made in the ordinary way, commanding from one to two cents per pound more in the market. VIATOR.

Worcester, Nov., 1863.

KEEPING CABBAGES.—We have no reason to change our old mode of keeping cabbages through the winter; and to those who have not stored theirs we again commend it as all that is desirable. Take up the cabbage by the roots—set it closely together in rows up to the head in soil, *roots down* the same as it grows—drive in posts at the corners of the bed and intermediate spaces if necessary, higher one side than the other—nail strips of board, lath or anything else that will answer on these posts—lay upon these old boards, doors, or if you have nothing else bean poles and corn fodder, so that the roof will be clear of the cabbage and allow the air to circulate—close up the sides with yard or garden offal of any kind—and your cabbages will keep all winter, fresh and green, and be accessible at all times, or nearly so, the frost not being nearly so severe under this protection as in exposed places. We have pursued this plan for years and it has always given satisfaction. Remember, exclude moisture—never mind the frost, which is a benefit rather than an injury.—*Germantown Telegraph.*

WORTH TRYING.—The Ohio *Farmer* says that coal oil has been found, by accident, to be a most effective means of protecting fruit trees against the ravages of the curculio, by placing saw dust, saturated with the oil, at the foot of the tree.

For the New England Farmer.

AMONG THE GREEN MOUNTAINS.

The Harvest—Hay Crop—Summer Freshets—Demand for Mowing Machines—Labor-Saving Machines—Education—"Every generation grows weaker and wiser."—State Agricultural College—Union of Colleges—The "Pet" Institution—The Weather.

MESSRS. EDITORS:—After so long a silence I occupy my "Easy Chair" at the window, to note a few retrospective thoughts for the *New England Farmer.*

The harvest has come and gone since my last letter, and quite a bountiful one has it been in many respects. In this county, (Caledonia) the vegetable growth was heavy, especially so in regard to grass,—yielding a large crop of hay; but the very unfavorable hay-season caused much grass to be severely injured before it could be properly hayed and housed. The four or five weeks following the middle of July, the usual time of the commencement of haying, afforded scarcely a fourth part of the time so that grass could be made suitable for the mow. The last of August and the first of September gave haymakers an opportunity to make hay, and it was very generally improved.

Alluvial or meadow land owners were severely taxed, both of money and *muscle*, the past season, from the high summer freshets, which came just in season to flow the uncut grass. Probably, double the time and labor was required to harvest the hay crop on these meadows the past season, that would have been required had they not been flowed. This made a demand for mowing machines, which was greater than the supply, during the hay season. The demand, principally, was for the Union, the Wood and the Hubbard machines. The lighter draft which these possess over the Buckeye and heavier machines, gives them the preference among our farmers generally. With the present scarcity of farm help, the mowing machine is really an *institution* to be valued and *esteemed* for the saving it makes of time and human labor. The writer is an earnest advocate of labor-saving inventions for personal considerations,—be they combined mowers and reapers, seed-sowers or horse-hoes,—machines of whatever name or kind, if they but lessen the muscular toil of the laborer, and, as well, prove a blessing to the *farm.*

Times are continually changing. In the days of our fathers, more than now, man's physical nature predominated over his mental; his mind was not exercised in proportion to his physical powers. The consequence was strong, muscular bodies and comparatively unexpanded intellects. The present generation is to some extent reversed in this particular. Schools are more generally enjoyed; a taste for knowledge is acquired, and the mind receives a greater proportion of care and exercise, it may be to the prejudice and loss of physical power. Therefore it is that "every generation grows weaker and wiser." And it is a noticeable fact, at the present day, that the young are more anxious to procure and introduce new inventions and appliances to lessen physical labor than are the fathers. The young are physically weaker, to say nothing of the disinclination to work in the minds of some; they cannot bear the labor the fathers did. This weakness may be occasioned by climate, food, devotion to study, want of physical exercise, or other causes. The fact is apparent;

still, who would wish to live in a past age that it might be otherwise? Would our grandfathers? Would our fathers? Would *we*? I think not. Then let us *educate* the mind as well as the body, even if it be done in part at the expense of the latter, and invent and introduce appliances and machines to supply the physical deficiency.

There is an effort making to establish the State Agricultural College, contemplated by the late act of Congress, and connect or combine with it the several Universities of the State, and thus form one grand Agricultural and Classical Institution. This subject is before the State Legislature, now in session. The question was lately considered, and very ably discussed, at a special meeting at the Representatives' Hall, by the Presidents of the several Colleges; and although the desirableness of such an end was fully admitted, yet it appeared to them, for the present at least, impracticable.

Whether the "union" be accomplished or not, the Agricultural College will be instituted without fail, and founded upon a basis, by the National grant, that wil give it strength and permanence. It will receive, as it should, the patronage of the farming public, which comprises four-fifths of the population and wealth of the Commonwealth, and, as a matter of consequence, be the *pet* institution of the Green Mountain State.

It would be quite unnatural, if not doing injustice to the season, to close without a word in regard to the *weather*. We have had thus far a very mild and pleasant fall. To the last week in October there was no frost to kill the most tender garden vegetables; during that week there were a few nights that the ground froze considerably—the weather being fair, with frosty nights and pleasant days. But that little flurry of King Jack was soon over, and we are enjoying fine Indian Summer days again. Yet, delightful as the season may be now, I am not forgetful that 'tis November in *Vermont*; and although we may sing very appropriately to-day,

"O, tell me not of fairer lands,
Beneath a brighter sky,"

the lessons of past experience have taught us that the morrow's hymn may read, in truth,—

Old Boreas knocks at the outer door,
The Storm-king reigns supreme!

Lyndon, Nov. 9, 1863. I. W. SANBORN.

For the New England Farmer.

THE CROPS IN VERMONT.

MESSRS. EDITORS:—As I said in my communication, the crop of hay was abundant; the quality was considerably injured from the want of good weather to make it in its season. To "make hay while the sun shines" was next to impossible the past season, for the sufficient reason that the "old haymaker" chose almost continually to hide his face. Therefore it was that two-thirds of the present hay crop was harvested after the middle of August. Oats were fair, though lighter than usual. The rust affected them in some instances. Early, more than late sown grain suffered from the heavy rains, and continued dull weather of July and August. Corn was very good—a heavy growth of stalks, well laden with large, sound ears. There was a very light yield of wheat,—scarcely half a crop. Most of the other lesser grains did usually well. The potato yield was less than usual,—affected by the rust. No rot to speak of. Ruta bagas and other root crops yielded well. They have grown principally since the rains above alluded to.

There has been a brisk demand for store cattle in this vicinity this fall. Hundreds of young cattle have been driven from Canada here, and sold to the farmers at prices varying according to quality, as follows: Yearlings, from $10 to $13 per head; two-year-olds, $17 to $24; milch cows, $18 to $25, &c. The call for store sheep is not as active as it was a year ago. Most of the farmers have a supply. All stock kind is valued at 33 to 50 per cent. higher than it was twelve months ago. I. W. S.

Lyndon, Vt., 1863.

For the New England Farmer.

THE APPLE CROP AND ORCHARDS.

MR. EDITOR:—I had the pleasure during one of the last days of September of looking at the fine apple orchards of Marlboro'. The season has been favorable for the coloring of fruit, and on some of the way the trees were literally red by the roadside.

How easy the crop looked to gather on the low trees in the young orchards. No shaking out of the dirt as with potatoes with an aching back. No husking and shelling as with corn. But here, the owner can at once barrel up this rich product of his farm, and send it to market with agreeable labor.

The soil of Marlboro' seems particularly adapted to fruit trees. It is strong, rocky, moist and deep. The surface of the town is undulating. The deep, moist soil prevents a premature ripening, common to sandy locations. The rich soil supplies abundance for the tree to feed on, and support its load of fruit.

It is not thought necessary in Marlboro' to keep orchard lands broken up, or in constant cultivation. I saw numerous orchards bending with fair fruit in sward land. The ground looked rich enough for the hay and fruit crop together.

I had a pleasant chat with my friend, WILLIAM GIBBON, in the West part of the town. I asked him, early in our walk, "Had he many apples pilfered?" "No, everybody had enough of his own." Really, it seemed so. The whole district was one continuous orchard.

Mr. Gibbon thinks much of the apple crop. He has reason to. His orchards this year will produce several hundred barrels. His trees are healthy and vigorous, although mostly in grass land, a portion of which has not been manured for ten years.

We agreed in our walk it was best to break it all up, and thin out the trees to allow more heat and sunshine to come to the roots. I believe that where such heavy, rich land is so nearly shaded by trees, the ground should be bare to the sunshine, that all the heat may be employed in promoting a profitable circulation of sap. I asked Mr. Gibbon what he thought of Dr. Geo. B. Loring's opinion, that it is not best to set good land with orchards? He replied, he could raise no crop like the apple crop in value at such moderate expense. Here, on land that had not been manured for ten years, was a heavy crop of apples.

The farmers of Marlboro' have sold several thousand barrels this fall to one party in Boston; the price obtained was $2 per barrel at the Marlboro' depot. Marlboro' is a thriving town, full of enterprise and activity. W. D. B.

Concord, Mass., Oct., 1863.

EXTRACTS AND REPLIES.

DEPTH TO WHICH ROOTS PENETRATE.

The roots of grass, which I enclose, were taken from three, four and five feet below the surface, where they formed a complete mesh work, hanging in large masses. The soil, for eighteen inches from the surface, was a strong loam; below that, mostly mineral matter, made up of a loose hard pan. The location was somewhat elevated. The entire section, of a hundred feet or more in extent, presented the same phenomenon of the roots. JAMES J. H. GREGORY.

Marblehead, Nov. 1863.

A PUZZLE ABOUT ONIONS.

As a constant reader of the *New England Farmer*, I have seen a deal of valuable information, as from time to time I have perused its pages. I therefore write with confidence of having my question answered in your columns. I have growing, side by side, two onions, one a *thick neck*, and the other as complete as I could desire. I wish to know the cause of the thick neck? If either you or some correspondent will answer the above through the *Farmer*, I shall be gratified. M. H. H.

Fall River, Oct., 1863.

ANSWER TO THE PUZZLE ABOUT ONIONS.

It is a law of Nature that every "like begets its like," and is true, as a general rule. Let "M. H. H.," of Fall River, raise his own onion seed and select the very best onions that he has, and the nearest like those he would wish to raise for seed onions. Set these out in the Spring, save the seed and sow it next year. Continue this practice from year to year, and the presumption is that the scullions will disappear. The writer has practiced this mode for several years, and has very few scullions, or "thick necks," the present season. J. F.

Uxbridge, Nov. 10*th*, 1863.

SHAKE BAG FOWLS.

There are no such fowls in this country, nor ever have been. The nearest thing to it is a "shake down," to fancy buyers, according to common pick-pocket parlance. ONE OF THE SUFFERERS.

Boston, Nov. 17, 1863.

CHEAP FIELD FENCE.—A good and sufficient field fence can be made with fifteen inches in width of boards, or fifty rods of fence to the thousand feet of boards. Set the posts, and nail the first board nine inches from the ground; then make the spaces five, six, seven and ten inches, five boards three inches each in fifteen inches; now turn a furrow six inches deep toward the fence on each side. This brings the earth within three inches of the bottom board, and adds six inches to the height of the fence, measuring from the bottom of the furrow, and the ditch or bank makes it very unhandy for animals to get at the fence. This makes a fence four feet ten inches high.

I have several hundred rods of such fence. The first was built five years ago. It has proved perfectly safe and sufficient against cattle that were unruly. It is not racked by the wind like a fence of wider boards. Fourteen-feet boards, with one post in the middle, take a less number of posts, and make as good fence as twelves. I have used white oak board at about twelve dollars per thousand, and swamp oak split posts at four cents each.—S. SHARPE, *in Genesee Farmer.*

For the New England Farmer.

HORTICULTURE IN THE CITY.

As long ago as I can remember, I read the N. E. *Farmer*. It was not then as now a large sheet, but was published in a quarto form. The last page was particularly attractive, with its spicy anecdotes and its interesting articles. My father preserved files of most of his papers, and gave his children, who filed them for him, the price of the paper for doing it. We stowed them away in an old bureau in the garret. Many were the hours I spent, sitting on the floor, with the N. E. *Farmer*. I was considered lost for hours when I carried each new number to place with the others, because I so much liked to read and re-read the anecdotes. I have never lost my attachment to the paper; and here in the crowded city it comes to me a welcome visitor, bringing with it country thoughts and childhood's memories that cheer and bless me.

I love the country, and in the busy city I like to feel its sweet influence. I make as much of my little yard as possible, and in imagination transform it to a garden. I have grapes and currants, flowers and shrubs, and this year we have had a few tomato plants which have forgotten they grew in a city yard, and have stretched themselves till they have taken up all the room they would have claimed on a farm. They have repaid us, however, by furnishing us with fresh and delicious fruit. I am surprised that more attention is not paid to raising grapes in the city. The vines occupy but little room. They are highly ornamental, and they furnish a family with an abundance of healthful fruit. Why do not landlords plant vines about all their houses? I am sure I should much sooner rent a house with a good grape vine, than one that had none. Currants, also, grow well in a small yard, and may be so trained against a fence as to require but little room, and there is no fruit more healthful than the currant in the hot summer days. A few roots of spearmint will furnish mint sauce when wanted, and a few plants of parsley will garnish many a dish and season many a soup.

These comforts may be had without excluding flowers in a yard of ordinary size, and they will diminish the expenses of a family more than one would imagine. Six tomato plants would supply our family—and it is not a small one—with tomatoes for the season, if I may judge from this year's experience; but they take up more room than currants, and grapes, and Lawton blackberries, yet they yield their treasures till frost comes, and are not to be despised.

Plant grapes, I should say to every one in the country where grapes will ripen, and I should say the same thing to every housekeeper in the city. Let us have as many comforts as possible and with as little expense. ANNA HOPE.

New York, Oct., 1863.

TOADS IN MARKET.—Live toads, says the *Agriculturist*, form a regular article of commerce in the London Market. They are generally imported from France, and sell for from 50 cents to $1 50 per dozen, according to size and activity. They are purchased by market gardeners in the vicinity of the city, to protect their choice vegetables from slugs and insects, which they do very effectually.

REPORT OF THE COMMISSIONER OF AGRICULTURE.

BY JUDGE FRENCH.

An act of Congress to establish a "Department of Agriculture" was approved May 15, 1862, and this is the first report of the "Commissioner of Agriculture," whose office was created by that act. It comprises 632 octavo pages, and is published in the general style of the agricultural reports from the Patent office, entirely free, however, from the typographical blunders which have so often tortured contributors to those volumes. The volume seems to me, who am not a printer, to be superior, in point of mechanical execution, to any Patent office report ever published; which may or may not be attributable to the fact that it is published by the "Government Printing Office," instead of being jobbed by some Government favorite. Let us be thankful, at least, that the names of the best agriculturists are not so misspelled, as they were last year, that their nearest friends could not recognize them.

The volume opens with the general report of the Commissioner, whose name—Isaac Newton—is synonymous with wisdom and philosophy. Therein he discusses wisely and well of the conditions essential to progress and prosperity in agriculture, which he deems to be these—Peace, demand at home and abroad for our products, increased respect for labor, a better knowledge of agriculture, and a better general education of our farmers. He then refers to some of the subjects which are treated of in the present volume. These subjects are, for the most part, discussed in essays, by individuals who have made them their specialties, and it is fair to say that it would be difficult to find in the country an equal number of writers, who could and would treat the various subjects more satisfactorily. They are so numerous that an index, even, would fill a large space.

The International Exhibition of 1862; Some Outlines of the Agriculture of Maine; The soil, climate and productions of Florida; The Wheat Plant; Wheat Growing in New Hampshire; Cotton, Flax and Flax-Cotton; Tobacco Culture; Imphee and Sorghum Culture; Shelter and Protection of orchards; Descriptions of the Leading Popular Varieties of the Apple and Pear, with plates; Grape Culture; Remarks on the Physiology of Breeding; Sheep Husbandry; The Kerry Breed of Cattle; Poultry; Entomology; Farm Implements and Machinery; Coal Oil; Vermont Marbles; Health of Farmers' Families; Timber on the Prairies; and the Agriculture of Morocco, are some of the leading topics discussed.

This diversity of subjects appears almost ludicrous at first, and one looks curiously for the *system* which groups together the agriculture of Maine, Florida and Morocco, and omits the rest of the world. This want of system is, however, no fault of the new Agricultural Department, which was compelled to do its best with such material as it inherited from the Patent office, which has heretofore had charge of our agricultural affairs, and such other as could be hastily gathered together. Any one who knows how little the outgoersfrom office in Washington love the incomers to their places, may guess how much aid and comfort Mr. Newton and his worthy chief clerk, Mr. Grinnell, whom we take to be the soul of the Department, probably derived from the Patent office in this matter.

Besides the essays, we find in the volume reports from the Chemist of the Department and the Superintendent of the Garden, and reports and tables of statistics, compiled mainly from the census of 1860, showing among other things the comparative productiveness of the loyal and disloyal States the year before the rebellion.

Great as was the prosperity of the country from 1850 to 1860, we see, by these tables, that the South not only fully shared it, but actually outstripped the North in its percentage of gain in agricultural products. Yet, with all this prosperity, Mr. Howard, of Georgia, said in the Patent office report for 1860, "In no part of Christendom, enjoying a good government, and settled by an intelligent population, does land sell for so contemptible a price as in the plantation States. In Georgia, for instance, land does not command an average price of five dollars an acre."

And yet, those sage Southern gentlemen, blind to the fact that only free labor was wanting to make their lands saleable at high prices, seceded for the sake of making slave labor perpetual!

If, now, we can keep an Agricultural Department permanent, so that it can gain materials for comparison and illustration, and so can systematize existing facts, and eliminate truth from statics constantly accumulating, we shall find its reports yearly of increasing value. The present is a valuable and interesting volume to any lover of agriculture, and its distribution cannot fail to add greatly to the knowledge of our agricultural readers. Many extracts from its pages are well worth transferring to the columns of the *N. E. Farmer*, when its publishers find convenient space.

WOOL GROWERS' CONVENTION.—The Ohio Wool Growers' Association meets at Columbus, Jan. 5th. The Cleveland *Farmer* says the flock masters of that State are fully determined to attend to their own business in their own way, and anticipates the most interesting gathering of the kind ever attempted in this country. Hon. Henry S. Randall, author of the "Practical Shepherd," has accepted an invitation to be present and address the association.

SORGHUM AT THE WEST.

The past season has been very unfavorable to the sugar cane business at the West. The Cincinnati *Commercial* publishes an account of the extensive operations in this line of Mr. A. W. Nason, Perry county, Illinois. He planted 250 acres, which produced "only seventeen gallons to the acre, whereas it should have been, according to the results of past years, 150 gallons." The crop is said to be deficient this year in about the same proportion throughout the West. Notwithstanding the unfavorable results of this first experiment, Mr. Nason has concluded to plant 400 acres next year instead of 250, and to add to the expense of his establishment, which has already cost him $7000, an additional $3000 for boilers and other machinery, although his present steam mill ground the cane this fall as fast as ten teams could haul it half a mile, and fast enough to produce in one case fourteen gallons of juice per minute.

SINKING ROCKS.

In reply to a recommendation to dig under and sink rocks below the reach of the plow, a correspondent of the *Country Gentleman*, after premising that with his own hands, assisted by one man and a span of horses, he has cleared between fifty and sixty acres from boulders weighing from half a ton to twenty tons, and in places as many as twenty rocks to the acre, writes as follows:

I have dug under and sunk boulders, or as I used to say, "sold them;" but I have learned better. I can blast, dig out, and draw off ten rocks on an average, where I can sink one, and the rocks are saved for fencing or building purposes.

For a while I did my own blasting, but afterwards hired it done. I paid twenty-five cents a blast, and one blast is usually enough for a rock. Take a pick-axe and loosen the earth around the rock, put in the hole, charge and fire! and with a cant-hook, made on purpose, get under the pieces and throw them out; and then take another rock of equal size in the same soil and sink it, and see the difference.

I think, after said correspondent had sunk a rock in my orchard, measuring 28 feet long, 16 feet wide, and 8 feet above the ground, and perhaps more below, he would write no more articles on *sinking rocks*. D. B. WAITE.

Springwater, N. Y.

We once had a *five years* experience in drilling and blasting rocks on a twenty-acre lot. That is, improving every opportunity during mild weather to get them out. We then resorted to digging and *burying* them below the plow. This experience brought us decidedly to an opinion exactly the reverse of that given above by Mr. WAITE. If rocks are wanted for walls, or for other purposes, we should not hesitate to use them, but beyond that, we should never *dig out* and take them from the land. What are upon the surface we would take away, if the soil were filled with them. If not, we would even dig and bury those found on top of the ground. We have heretofore spoken of the injurious effects to the land of taking out and carrying away large quantities of stones.

For the New England Farmer.

THE BOY ON THE FARM.

Gardening—Winter Schools—Parental Encouragement—Amusements—fishing, fowling, nutting—A Life Devoted to Education—How to Get It—"Half is more than the Whole"—Manliness and Scholarship.

MESSRS. EDITORS:—I was born and brought up on a farm, and, from my earliest days to the present moment, I have taken the greatest interest in farming and gardening. My father was a physician of extensive practice, and seemed to have the means of educating his children as well and as fully as any man in the little town in which we dwelt. Yet, from the time my brothers and myself were able to do anything, as soon, every year, as there was anything to be done in the garden or on the farm, he took us from school and kept us at work until the last ear of corn was husked. He then sent us back to school. He was highly educated himself, and took care that, for the winter school, which was kept about half the year, a teacher should be employed possessing the best qualifications for what he considered that most important office.

We boys were kept busy in doing whatever boys could do,—driving the cows to and from the pasture, dropping corn, beans and pumpkin seeds, planting potatoes, sowing and weeding in the garden, and afterwards, as we gained strength, using the spade, the hoe, the rake, and, finally, the scythe and the flail. I thus grew up familiar with all the operations of a small farm and a large garden, and somewhat skilful in the use of all the common agricultural and horticultural tools.

My father was not a hard master, though a somewhat particular one. He often quoted the old proverb, "All work and no play make Jack a dull boy," and he acted as if he fully believed it. Fishing and fowling were among our recreations. When the time for salmon-trouts came, he took us to a creek two miles off, to places which he knew, from which we commonly returned with full baskets. When the shad began to make their appearance in the river which ran by our garden, we went below the mills, and, with spears, often succeeded in getting a fine one—sometimes several. He knew where the pickerel, the perch, and the shiners were to be found, and showed us how to catch them. Once or twice a year we went, taking a whole day for it, with all the lines, hooks and bait that were necessary, to some well-known spot on the coast, four, or five, or seven miles off, to catch cunners, or sea-perch, bass, pollock, or whatever else offered itself; and we sometimes brought home a fare of hundreds—as many as we wanted. These excursions were not accidental. They were intended as a gentle stimulus to boyish industry. "When all the weeds in that square of carrots are taken out clean, we will go a fishing, boys," said the kind old gentleman. The weeding was usually accomplished at the time fixed. "When the potatoes and corn are well hoed, we will take the wagon and go to Cape Porpoise and catch cunners, or to the Bass Rock

and try our luck upon the striped fellows."

There was not much idleness in the field with such a prospect before us. "When the whole garden is free of weeds, we will fill the chaise and the wagons, and go, girls and all, to Pickwackit Plains and gather blueberries, and take our guns and see whether we cannot shoot some wild pigeons." The memory of some of these huckleberry parties are among the pleasantest reminiscences of my life. Strawberries, raspberries and blackberries grew in abundance nearer home, and the gathering them was often a pleasant interlude of an hour or two after a busy day. As summer and autumn waned, and the nuts grew ripe, we went up the river to Mitchell's Mill, to gather chestnuts from some trees which few people knew the existence of, or we got leave from the owner of the woods to pick up shagbarks in the hickory forests of Harrasicket; or we filled our baskets with the hazelnuts on the banks of the river Mousum. My father's practice had carried him to almost every house within six miles, and, as he had his eyes open, he knew all the good places.

The reason of my dwelling upon these pleasant scenes is, that although I have devoted my life to education, and, in order to teach well, have sought in all ways to get the best education I could, I have always considered the part of my education which I got on my father's farm, in his garden, and in the woods and on the streams and seacoasts, to which our holidays carried us, far the most valuable.

My father was an excellent classical scholar, and had also paid some attention to the trees and flowers, and to the birds and fishes and other animals. He had a copy of Turton's Linneus in his library, and was fond of pointing out the descriptions of the various animals we met with, and showing us how we should distinguish them. The river Mousum flowed by his garden, and he did not consider it time lost to point out the habits of the pickerel and other fishes that swam in it, and of the minks and muskquashes that fed upon its shells and had their holes in its banks, or to point out the curious remains of a beaver dam, which were still visible half a mile down the stream, at the mouth of a little brook. It was natural that, under such influences, I should imbibe a taste for natural history,—a taste which has been an unfailing and delightful source of amusement, of health and of improvement, all my life.

When the work of the farm and of the garden was finished, and not till then, we went to school. We thus regarded the school as a privilege, as a most agreeable change and refreshment. We were not idle. We took hold of our studies with earnestness and pleasure, and with success. It seemed strange to us that our cousins and the other boys who had been at school all summer, should dislike it so much and be so idle. To us it was delightful, and we gave ourselves entirely to it. And, what then seemed strange and unaccountable, we, with our half-year's schooling, were always amongst the best scholars. Many years afterwards, I read in an old Greek book upon agriculture, "The Works and the Days of Hesiod," an adage or proverb, which says, "The half is more than the whole." To me it seemed, even then, that my half-year's schooling was better than the whole year's of the other boys;—I have no doubt of it now. We send boys to school a great deal too much. They get wearied of it and disgusted, and so hate it. They cannot take hold of their studies as they would if they considered it the greatest of all privileges to be allowed to go to school. Besides, in doing this, we forget that school opens to the learner a few poor books of man's making, and shuts out the infinite volume of God's works, every page rich with the facts and pictures and principles of the history of His beautiful creation.

Years after, when I conversed with my father as one of the most delightful companions I had or have ever met, I asked him why it was that, intending me, as he did, for one of the learned professions, he thus took me away from school, and kept me, half of every year, except one, till I entered college, at work in his garden or on his farm. "My son," answered the kind old man, "I wanted you to be a scholar; but I cared much more about your being a man. I valued manliness much more highly than scholarship. Are you less manly than if you had spent the whole of every year of your boyhood in school? Is your knowledge of things, or realities less? Are you less of a scholar?"

G. B. E.

For the New England Farmer.

MY JOURNAL FOR THE SEASON OF 1863.

MESSRS. EDITORS:—As every subject relating to the production of various species of vegetation has been fully discussed for a long time past, I concur with one your correspondents, that farmers, on a large or small scale, would do more good by reporting our success, by various experiments, in raising our crops in a matter of fact way, than we can by enlightening the world by our theories.

We (my son and self) commenced farming by sowing grass seed and winter wheat in the autumn of 1862, and corn, potatoes, Hungarian grass, and other vegetable productions, in the spring of 1863, after an uncommonly mild weather. To begin, we sowed our garden seeds the 11th of May, Therm. 88°, and after coming up as usual, they were mostly destroyed by a hoard of little nocturnal depredators, which left us but a small crop. On the 16th, planted corn on old, tough pasture land, lately plowed deep, dunged in the hill with muck compost, the seed having been soaked forty-eight hours in saltpetre water, the corn came up well, and was "let alone" mostly by the hated worms, which I think do not relish saltpetre. The corn was slightly cultivated and hoed twice, but the incessant rains and high winds were unfavorable to a large crop, What was harvested was of excellent quality; the seed was of the Brown or King Philip variety. The Hungarian grass comes next in course. The seed was sowed the 21st of May on old, worn out, sandy soil, where corn and potatoes had been grown two seasons previously. The ground was manured with mud and animal excrements composted, and plowed in superficially; the seed vegetated well, and the crop at harvesting was estimated at three tons to the acre, after curing, which was done with great difficulty this season by reason of almost incessant rains. By the way, experience being the best teacher, we delayed mowing it, hoping for better weather till it got far advanced in forming seed, which was done on the 25th day of August. The comparative value of the grass, and that mowed last year

while in first bloom, is decidedly in favor of the early cut. No fodder on my farm was so eagerly eaten by horses and cattle as our early cut Hungarian grass last year. This year the same animals hesitate till they find out whether it is hay or straw before they commence eating. I believe many farmers have formed their opinions and prejudices about Hungarian grass from the circumstance of delay in cutting it after it is full seeded; all except the seed is very little better than rye or oat straw thrashed. Whether the seed is of more or less value than the early cut grass for fodder, I have formed no opinion for want of experience.

Potatoes on dry or wet land in this vicinity were inferior in quantity and quality this season. Our early ones, called "crackers," were planted on dry ground in the garden; though fully supplied with rain, were less than half a usual crop of indifferent eatable potatoes. Our main crop was upon a piece of reclaimed meadow, formerly a duck pond, a most unpropitious season for planting on such land. The meadow was plowed on the 24th of Oct., 1862, with meadow plow, and was planted with the white kidney potato, on the 27th of May, after being well harrowed with the cultivator and dunged in the hill with manure from the horse's stable. The field was hoed onee. On the 26th of August, a great fall of rain submerged the potatoes for a short time. They were harvested the last of September and proved a better crop than those planted in the garden; they were free from rot at the time of digging. It is seldom we have too much rain for potatoes planted on dry land, but the present season has proved an exception. During my eighty-four years of sojourn among potato fields, I have never known sandy fields, instead of dust transformed into so much "mud and mire," as has been the case the last summer. Our winter wheat was sown Sept. 2, 1862. It came up well, survived the winter and afforded a handsome yield. Thanks to friend Poor, this is the third season we have raised winter wheat enough of good quality to supply our family with that kind of bread. On the 4th of September, 1863, our winter wheat was sown on old pasture ground turned up in June; after a dressing of compost was apalied the seed was plowed in with a horse plow—looks well.

Our grass crops were much diminished by the winter-kill of 1861-2, but upon newly laid down lots it was uncommonly tall, full of sap, and destitute of that gummy matter which adheres to the scythes in drier seasons. The summer of 1809, and several seasons since, were remarkable for copious rains and damaged hay; but for more than half a century, such persistency of rainy weather through all the summer months has escaped my recollection, if it ever happened.

The odd year—reminds me of that good man, Mr. Cole,—has always been the bearing year with our little orchard. This fall, from some cause or causes, our apples and pears have been uncommonly large and free from scars and worm holes, which go to confirm ideas previously entertained in regard to raising fruit. In the first place, the great abundance of rain has been sufficient to supply the thirsty grass with a competency of moisture, and allow the roots of the trees a grudging pittance, which it could not imbibe itself in orchards where we manage so badly as to let the grass grow among the trees. Another cause of fair fruit may be the feeding of the windfalls to the cattle and pigs daily. But I consider the main cause of our fair fruit was owing to manuring the trees, and eradicating every intruding trespasser. For some years past, we have been in the habit of conveying our suds and sink water to the trees nighest to the house, and occasionally applying a load or two of meadow muck about their roots.

Whether my opinion is worth anything or not, I ask nothing for it. I think our farmers—some of them—labor under a grand mistake in planting trees in large orchards, unless they are prepared with foresight, manure and money enough to cultivate them as they would a garden. Within my recollection, in numerous instances, I have seen large orchards planted with great pains and accuracy, and for a few years the owner would feel sufficiently interested to give it a start and make a fine show; but after a while other cares and hindrances would step in, and of necessity the orchard would be neglected. A coat of thirsty grass would infest the ground; the hordes of caterpillars and cankerworms, like Goths and Vandals, would make their irruptions the moment care was neglected, and by the help of cattle the victory would be won by the invaders without "foreign intervention;" and the poor orchard, besides "going to grass," would display rotten, worm-eaten trunks, dead limbs, and the want of good calculation in the owner.

Our cranberries are equal to the Cape variety this year; something like sixty or seventy bushels are the production of our farm. SILAS BROWN.

Wilmington, Nov. 14, 1863.

For the New England Farmer.

AGRICULTURAL SOCIETIES.

In an article quoted in your last paper the question is asked, "What will become of the Agricultural Societies?" Agricultural Societies were established to encourage those departments of agriculture that need improvement. To collect facts. To diffuse information. To promote discussion. To make useful suggestions. To advance all these objects, large premiums have been offered. Liberal appropriations have been made by the State. But as agricultural Societies have been managed for some years past have these objects been promoted? Are not premiums now paid for objects that no longer need encouragement? What advantage is now gained by offering premiums for the best apples, squashes, potatoes and beets? Does not the interest of cultivators afford sufficient stimulus in this direction? What advantage now results from premiums on plowing? This whole matter is now well understood, and competition among the manufacturers of plows is doing all that can be done for the improvement of plows. The object of late has been rather to make a fine show than to promote real improvement, and in too many cases, to induce those who have good articles, to exhibit them at the show. To accomplish this end premiums have been awarded to men rather than to products; with a certain class, it has now become a mere matter of money-making. Their object is to get the premium, without regard to any real improvement. Is not the raising of a good breed of swine, of good neat stock, whether for the dairy or the shambles, of

good horses, sufficiently profitable without taxing the whole community to pay a premium to those engaged in it?

There may be some things that need temporary encouragement in this State. Possibly the cultivation of wheat, and sheep culture, are among them. There may be certain facts with respect to the preparation and use of manures, that need to be ascertained by extended experiments. Perhaps we need to ascertain by more frequent experiments, whether it is not more profitable to raise a hundred bushels of corn or four tons of hay, on one acre, than on two. Do we sufficiently understand the capabilities of land, and the powers of manures? Many such questions will suggest themselves to thoughtful men. Now, if the funds of agricultural societies could be so employed as to elicit correct answers to such questions, would they not much better accomplish the purpose for which they were intended? In this connection it occurs to me that the course pursued by the trustees of the Massachusetts Agricultural Society is worthy of all commendation. They have aimed to diffuse information, and to suggest important experiments. They have imported stock that had a high reputation abroad, that our farmers might test its value in our climate and on our soil. They gave attention to plowing, to fruit-raising and various other objects, so long as these could be promoted by premiums, and then turned their labors in other directions. They seem to me to have much better understood the philosophy of the whole subject, and to have done much more to promote the permanent improvement of agriculture than any of the district Societies. The state of society has greatly changed since agricultural societies were first established. Information on all subjects is more generally diffused, agricultural papers and periodicals have become an established institution. Their editors and correspondents are on the watch for facts, and it is their daily business to spread them before the cultivators of the soil. They have taken the place, in this respect, which was expected to be occupied by the gatherings and discussions of the members of agricultural societies.

Certain departments of agriculture, as fruit-growing, milk-raising, sheep-culture, stock-raising, horse-raising have, assumed a sufficient magnitude to warrant those engaged in them to form special associations for their promotion. It seems to me that our friends in Vermont and the West are on the right track in this respect. The question again occurs, what will become of the agricultural societies? Have they not accomplished their mission? Are they not about played out?

QUERE.

THE WESTERN VINEYARDS.—The vineyards near Cincinnati this year are blasted by the "rot," which is said to have destroyed more than half the crop. The vineyards of the late Mr. Longworth will not produce more than one-fourth of a crop. The Isabella and Catawba grapes have suffered most, and in several vineyards will hardly pay harvesting. The Delaware, Concord and Marion grape have been less touched by the rot, and the Delaware vine will yield from ten to fifteen pounds. The vineyards on Lake Erie, of which comparatively little has been said, are described as looking uncommonly well.

For the New England Farmer.

CORN COBS.

MR. EDITOR:—By some agricultural writers, corn-cob meal has been compared to saw dust, as an article of food. Admitting the cob possesses but little value of itself, it does not necessarily follow that it is worthless when ground together with the corn. Corn-and-cob meal makes lighter food than meal from corn alone; and stock fed with the former is not liable to become cloyed, as it is when the latter is used altogether. Clear corn meal is too heavy in its nature for stock that is not pretty well fatted; and the same grain used in connection with the cob, well ground together, I consider worth more than it is without the cob. I think this is true, especially with cattle and hogs. If very fat, the corn may be more profitably used alone.

I make these suggestions upon the supposition that the cob possesses no virtue of itself. But facts are recorded where animals have been kept on cob meal alone—thus proving its possession of *some* life-sustaining properties.

I. W. SANBORN.

"The Meadows," Lyndon, Vt., 1863.

For the New England Farmer.

SHALL WE RAISE TOBACCO?

Short-sighted self-interest says *yes*; it will bring quick returns and unparalleled profits. It is an article that the people *will use*, and Massachusetts farmers may as well enjoy the benefits of the crop as any one. Its cultivation will insure us a snug income every year. It will furnish us the means of paying all our vexatious bills for labor, blacksmithing, taxes, &c., and leave a clever surplus for permanent improvements besides. We can buy fertilizers, implements and machines. We can live better and make our farms look better than we possibly could if we did not raise it.

Ah! Look again. Moral sentiment says No; produce nothing that is not beneficial. Tobacco neither strengthens the arm for labor nor imparts vitality to the system. The brute creation repudiate tobacco universally. Man is the only animal that will masticate it. Physiologists are unanimous in the opinion that it does not nourish the body, but enfeebles it. It also stupefies the mind. If this is true we ought not use it; and if we ought not to consume it, we certainly ought not produce it.

Take an economical view of the matter. This nation expends $50,000,000 for tobacco annually. This is an enormous waste. That sum, if saved for a single year, would be sufficient to establish Agricultural Colleges in every State in the Union, and endow them magnificently. It is folly to suppose that it can be relied upon for a long period of years as a profitable farm crop.

What is the testimony of tobacco growing States? The soil of Maryland has literally turned red—blushing for shame—in consequence of the exhausting crops which have been repeatedly taken from it. And can it ever be wise economy to rob the broad mown fields of the nourishment which they need for the sake of giving an acre of tobacco a prodigious manuring? It is claimed that by constantly changing the plot used for tobacco the entire farm may ultimately be brought under a high state of cultivation. But suppose that on a farm of one hundred acres five acres be

planted every year, it would require twenty years to renovate the farm; and the pieces, which were first seeded down, would by that time be in a very barren condition. Maryland is an example in this matter. Let not Massachusetts, whose example in politics, education and religion is a guiding star to the nation, strive to imitate that rebel-ridden State in its destructive policy of tobacco raising. VIATOR.

Worcester, Nov., 1863.

REMARKS.—We quarrel with no man in the indulgence of his appetites and tastes. It sometimes becomes a duty to *advise*, and when it does, we mean to do it in a spirit of kindness. We eschew tobacco in all its forms, and *always have*. We believe it to be injurious to the system, and greatly disagreeable to thousands who do not use it, but yet cannot escape its unpleasant odor and influences. We are sincerely sorry that any of our farmers are turning their attention to the cultivation of a crop which can in no way be made a blessing to the human family. We cannot conscientiously encourage it, though it produce ten times the money profit of any other crop.

THE INDIAN CORN.

We doubt whether our farmers raise any of the large, bulky crops that afford them a better average profit than Indian corn, or one upon which they look with more satisfaction and pride. It is a beautiful crop to look at, from first to last—from the first springing blade through every stage of its growth. What pleasanter sight does any crop present than the corn when two feet high, with its pendulous leaves, gracefully hanging over on every side and trembling in the breeze. How rich are the broad, dark green leaves at this period of its growth. In a few days, upon some aspiring stems, "spindles" show themselves, and in a short time they dot the whole field. Then the ears set, the glossy "silk" pushes its way from each kernel to the open day, and the field is in its prime. But the gradual changes which occur in maturing the seed, and in the decay of the plant itself when its work is done, are all interesting and instructive, until frosts strike the husks, opening them and revealing the *golden ear*. It is especially gratifying to raise Indian corn, because it serves so many purposes. In an unripe condition, it is scarcely excelled by anything else, as a palatable, nutritious and wholesome food. In various forms, it subserves the wants of man and beast better than any other grain. It is easily preserved, only requiring to be kept dry, in order to keep it in good condition for months or for years.

In addition to these considerations, the corn crop affords us a large amount of the sweetest and most nutritious fodder we have, when it is cut early and properly cured. A field that will produce fifty bushels of corn per acre, will give as much excellent fodder as will the average acres of the upland mowing lots in New England. An observing farmer said to us, recently, that he always had noticed that when his corn fodder was gone, his cows decreased in their quality of milk, though well fed on English hay and rowen. We have known the horses of a livery stable kept through an entire winter on the "toppings" of corn, and came out well in the spring, though no more grain was given them than when fed on hay.

FISK'S PATENT LAMP HEATING APPARATUS.

We have read *Hall's Journal of Health* with interest and profit for several years. His teachings are natural, and reliable. Whatever he advises, we have long thought it safe to follow. Seeing, some time since, his recommendation of the lamp mentioned at the head of this article, we wrote to the Agent to send us one, which he did, and we have already used it sufficiently to add our testimony of its value to that of Dr. HALL, the *Scientific American*, and numerous other persons who have used it.

The patent is a lamp-heating apparatus, for *Boiling, Frying, Stewing* and *Steeping with the same flame that lights the room!* Of course, it is on a small, compact scale, admirably adapted to the nursery or sick room, but capable of cooking a moderate meal, where fuel and light must be rigidly economized. The apparatus is of various sizes, holding from about a pint to four quarts of water, heated by gas or by a kerosene or coal oil lamp, and having a vessel in which to keep milk or other food warm, or to stew in, and an arrangement for frying a small amount of meat. The prices vary from $2 to $5,00. We have never before seen anything of the kind which we thought would afford so much convenience and comfort at so moderate a cost.

Send to the Agent, WILLIAM D. RUSSELL, 206, Pearl Street, N. Y., for a pamphlet, with pictures illustrating the lamp, and full descriptions of its use.

JAPANESE CUSTOMS.—As soon as the babe leaves its mother's breast, the first thing it learns is not to walk or to run, but to squat on its heels in this baboon fashion. If the Japanese are on ceremony, then they sink on the mats, resting jointly on heels and knees. And this attitude, also, which would be torture to us, they maintain for hours, apparently without serious inconvenience. Finally, the day's labor over, or the time for siesta in the heat of the day arrived, they throw themselves down full length on the mat, with a little padded rest, just large enough to receive the occiput or the angle of the jaw, and sleep as soundly as the most fastidious with a feather pillow and bed.—*Sir R. Alcock's Three Years in Japan.*

RELATING TO MANURES.

The interest with which the subject of *making and applying manures* is regarded, ought not to grow less until a larger portion of our farmers better appreciate its importance. So much has already been said upon it, that we always enter upon any discussion in relation to it with reluctance. Nevertheless, it is a duty to lay before the reader whatever we may find that will shed new light upon it. This may be done in some degree by presenting the opinions of judicious and practical men. At the late New York State Fair one of the evening discussions was upon "*The best method of husbanding and applying manures.*" We will give the opinions of some of the speakers, with such remarks as seem appropriate to the opinions expressed.

"SOLON ROBINSON thought the best way was not to husband it at all. He would draw it out as fast as it was made."

We have never had better results from the use of manure than when it was hauled from the barn in its crudest condition, then spread and plowed in. When the ground was again plowed the following spring, it was very light and black, and the crops that grew upon it were exceedingly heavy. Every experiment of this kind has produced a similar result. During the period between the plowings, the manure is sufficiently warm to induce the putrefactive process, so that before planting time it is thoroughly decomposed, and the gases which have been evolved are retained by the surrounding soil, so that *nothing is lost*. Upon plowing in the spring the whole field strongly reminded us of a pan of well risen dough, it was so light and porous.

"Mr. VAN ALSTYNE agreed with Mr. Robinson. He would apply it on the surface. Nature was a safe guide, and she speads manure on the surface."

Mr. Robinson did not state what he would do with the manure when it was "drawn out"—but we do not think he would recommend to let it lie on the surface. Mr. GEORGE GEDDES said:

"He did not think Nature a safe guide. We were at war with Nature. He believed in top-dressing, but thought the fact that trees deposited their leaves on the surface was no proof that it was best to apply manure the same way."

Certainly, we are at war with Nature every time we graft an apple or pear tree, or bud a rose bush, or root prune. Trees and the beasts of the field leave their droppings upon the surface. The cat is the only quadruped that does not believe in top-dressing!

"Mr. WALRATH had practiced top-dressing for 20 years. It ought to be well-rotted before using it. Composting manure added 25 per cent. to its value. He thought it also killed the seeds of weeds."

We cannot agree with Mr. Walrath that manure is increased in value by composting it. It may be more convenient to apply it in that condition to grass lands, but how it increases its value we cannot understand. It is a question, whether manure can be heated sufficiently to kill the seeds of weeds, without injuring the manure itself. We wish it were settled.

"Mr. T. C. PETERS found that the yield of wheat on Long Island was eight bushels per acre, higher than the average in the State."

"Mr. COX, of Long Island, said, they buy stable manure in New York which costs them $3 per load on the farm, and apply 12 loads per acre. This gives them 20 bushels of wheat per acre. The wheat does not pay for the manure, but after the wheat they get two or three heavy crops of hay which brings a good price.

"Prof. NASH thought one reason why the Long Island farmers showed so well in our agricultural statistics, was because some of them were wise men, and some of them were not as wise. Immense quantities of leached ashes were brought from Western New York. Some farmers use 1,500, 2,000, 2,500 bushels per annum. They are wise. The ashes do good. Fish, too, can be purchased at a cheap rate, and they are extensively used as manure. He had said some were unwise. Perhaps the remark needed qualifying. To illustrate what he meant, he would say there were many *fancy* farmers on Long Island; men who had made large fortunes in the city. They raise large crops regardless of expense. A good lady sometime since was bantering with her husband about the expense of his farm. "Every man must have some pleasure," he said. "My farm does not cost me over $3,000 a year, and it affords me more enjoyment than I can get for the money in any of the fashionable amusements of the city." The Professor knew a man of this character who has a farm of sixty acres on Long Island, and he makes it produce more than six hundred acres of the same land produced a few years ago. The crops are raised at a loss, but they help to swell the general average. As a general rule, however, the farmers on Long Island are very successful. They pay great attention to composting everything that will make manure, and keep up the fertility of the soil.

"Hon. GEO. GEDDES remarked that the Long Island farmers sell everything they raise. They even sell their straw, and consequently they are obliged to buy manure, even if it costs $36 an acre to raise twenty bushels of wheat. Farmers in Onondaga Co., are wise enough not to sell manure in the form of straw and hay. He knows some who raise several hundred bushels of grain, and cut one hundred tons of hay a year, who do not sell a particle of it. It is consumed on the farm and the manure keeps up the fertility of the soil. Taking into consideration the amount of produce raised, and the little that is sold off the farm, he thought the farmers of Western New York manured their land more highly than those of Long Island. There was more fertilizing matter in a good clover sod than in any twelve loads of manure you could purchase in New York. He had a field that had never had a shovelful of manure applied to it for sixty-five years, and by growing clover and pasturing it with sheep, &c., it gets richer instead of poorer. Every farm should be self-sustaining. We cannot afford to draw ma-

nre a mile. In regard to husbanding manures he had little instruction to give. Had seen excellent effects from applying manure on grass lands in the fall intended for corn. The corn was a foot higher and of a darker color. He thought that in the fall was the time to apply manure; but the question was how to keep the winter made manure through the summer without loss. He had thrown it into piles under sheds, but it fire-fanged.

THE HIGHWAY-SIDES.

In many parts of our country the borders of the highway present the most slovenly appearance. In some cases bushes grow up to the very rut of the carriage wheels, making it unpleasant for a foot-passenger to step aside, especially when the foliage is wet. In other cases the soil on either side of the beaten track is suffered to propagate thistles, daisies and other noxious weeds, which supply the adjoining fields with future harvests, each after its own kind. A correspondent of the *Country Gentleman*, who has recently visited Skaneateles, N. Y., and the adjoining towns, was much pleased with the neat appearance of the highways in that section.

The soil on each side of the carriage-track has been neatly graded and seeded with grass seed, and all the stones and rubbish removed, and a good burden of grass is cut annully. In some localities where the grass had just been mowed, I thought at the time that there would be not less than two or three tons of good hay per acre. Where a farmer has a long line of highway running through his farm, it will certainly pay well to grade the sides of the beaten track, and seed to Timothy and blue grass, or with red top, in case the soil is rather low and wet. Where the soil is high and dry, Timothy and red clover would flourish well, and pay for all the expense of grading, to say nothing of the beauty and neatness which the tall grass, or neatly mowed highway, would give to the appearance of the country.

For the New England Farmer.

FOOT ROT IN SHEEP.

At this time of high prices in wool and sheep, it seems particularly desirable that all who keep sheep should understand the preventive and cure of the most common diseases which mutton is heir to. Thousands of dollars are annually saved by careful breeders who study the habits and diseases of sheep; while many fine flocks are ruined, and much money lost by inattention and lack of that knowledge which should be in the hands of every flock-master.

Among the most common and troublesome diseases of sheep, in many parts of New England, is the foot rot. In wet seasons, like the past, it frequently breaks out in flocks which have not been exposed to others that have had it. When sheep go long in wet, low pastures, or stand long in water, it affects the issues in the feet so that an inflammation takes place, which induces the disorder, without contagion or infection. Still it is very contagious, and diseased sheep will leave infectious matter when they travel that will communicate the disorder to others that pass over the same ground many days afterward. Therefore avoid driving sheep over a road passed by disordered ones, or into a pen for washing where such sheep have been confined. But if your flock is attacked by the foot rot, do not be unduly alarmed and sell them much under the price of sound ones, for they can be cured for a shilling per head.

The disorder usually commences in one of the forward feet, causing lameness. The sheep appears uneasy, frequently raising the foot affected. On examination the foot will be found inflamed between the hoofs. A day or two later matter will be found at the heel and between the sections of the hoof, which emits a bad and peculiar odor. If a remedy is not applied the hoof will rot off.

A very efficacious remedy is made as follows: Take three parts of finely pulverized blue vitriol, one part of white lead, mixed into a thin paste with linseed oil. Clean the foot thoroughly, cutting away all the hoof that is loose, so that the paste may come in contact with the part affected, and apply the mixture with a small paddle or brush. Repeat the application two or three times at intervals of a week, being careful to pare the hoof off where it is affected before applying the mixture; and a permanent cure will be effected.

Other remedies may be equally good—this I have proved efficacious. Some five or six weeks since, a neighbor of mine drove in, from a back pasture, a flock of fifty odd sheep and lambs very badly affected with foot rot. I assisted in doctoring them as above. In paring, we found it necessary to remove nearly the entire hoof in some instances. They rapidly improved, and after three applications no lame sheep were to be seen in the flock. He now considers them entirely sound, and it has not cost him over ten cents per head to cure them. Thoroughness is the *sine qua non*.

J. R. WALKER.

Springfield, Vt., Nov., 1863.

For the New England Farmer.

SALT AS A MANURE.

The importance of common salt as a plant fertilizer has not perhaps been fully understood by agriculturists. It has long been known to possess a specific influence in fructifying certain plants—asparagus, in particular—and to such it has been applied liberally. But few trials have been made with it upon grass lands, upon garden vegetables, cereal grains, &c., in this country, or, at least, but little has been said respecting its use in the journals. Upon theoretical grounds it should prove serviceable, as the analysis of the ash of turnips, potatoes, kitchen garden vegetables, meadow plants, &c., prove them to be rich in soda and the chlorides. I suppose we are not yet prepared to reject the teachings of chemical science as afford by the analysis of soils and plants, although the faith of some may be shaken as regards their value.

The practical trials of salt, as a manure, on record, are those of Kuhlman in 1845, and the General Committee of the Agricultural Society in Bavaria, in 1857 and 1858, and recently we have the report of Dr. Phipson, of Liverpool, who was employed by the Chamber of Commerce, of that city,

to investigate the subject. He reports, "1st, that plants, without a due proportion of salt, cannot attain their proper degree of perfection—and this applies especially to colza, turnips, sweedes, beet, spinach, wheat, oats, maize and other grasses. 2d. That salt is an essential constituent of plants as well as animals. 3d, That the soil is constantly losing by cultivation a great amount of salt, taken away by the crops. 4th, That none of the manures, at present used, contain any salt; even guano contains only four-tenths of one per cent. 5th, That it is necessary to add salt at regular intervals to the soil in some shape or other, if we wish to drive the greatest possible benefit by our crops."

The Doctor's report, covering as it does nearly the whole field of plant growth, looks a little extravagant. Like most men employed to investigate specifically in one direction, he has become surrounded with the halo of one idea, and everything that grows upon the earth has a saline look to his eye. Still, there is undoubtedly much importance to be attached to the views presented, and farmers will do well to experiment intelligently with salt as a fertilizer. Kuhlman very nearly doubled his crop of hay upon a natural meadow by the use of salt. The Bavarian Agricultural Society increased the crops of wheat and straw in a very remarkable degree by its use. It should, however, be stated that in both of the experiments the salt was combined with the salts of ammonia, the muriate and sulphate.

We are not to suppose that salt in all cases is required to furnish the plant with the saline principle, or even its separate substances, for in the cereals they form by no means the most important constituent. There is a mystery as regards the action of certain agents upon plant growth. Their influence results from their presence in the soil, or they effect certain chemical decompositions which produce the food requisite without being themselves assimilated. This opens a broad field for chemical research, and the future is to shed much light upon the subject.

If salt increases the growth of wheat upon a field, it is certain that there was present in the soil the requisite quantity of phosphoric acid, silicic acid, potash, &c., to supply all the wants of the grain, but yet it was not in a condition to be assimilated. The salt, like a prompt and efficient nurse, properly prepares the food; the plants eat and thrive. Salt in such a case is not a *manure*, but a chemical agent capable of fitting certain substances to act as manure or fertilizers. Soda, the base which unites with hydrochloric acid to form salt, has been found to exert a specific influence in the production of barley; potash has the same effect upon wheat; and yet under certain conditions, reversing the application of the salts, has produced results, as regards magnitude of crops, far more striking than when applied in their natural order.

As regards the application of salt to our fields, the question arrises, how and where shall we use it, and in what quantity? It should be tried upon weak meadow lands which have not been under tillage for a considerable time. Use it in the vegetable garden; use it whenever, in accordance with an intelligent judgment, you think there is slumbering in the earth the essentials of plant nutriment, which may be aroused by the action of the alkaline agent, or the acid with waich it is combined. Use it upon plants which assimilate it as food. Dissolve it in water and apply the solution, or sow it broadcast by the hand. Three bushels to the acre for meadow land may be enough, although more can do no harm. If you get no good results the loss will be of little account. If possible, combine it with the cheap nitrate of soda, or sulphate of ammonia, in equal proportions, and you will obtain more prompt and satisfactory results. JAMES R. NICHOLS.

Haverhill, Nov. 30, 1863.

For the New England Farmer.

WHAT MAY BOYS AT SCHOOL BEST READ?

While I was at work on the farm or in the garden, I did not every day feel any inclination to read. Still, at intervals, when work was not pressing, and on rainy days, when there was nothing for boys to do, I read such things as fell into my hands. But in the long winter evenings, when there were no school lessons to learn, which was usually the case, I had a great deal of time at my own disposal, and commonly spent it in reading.

One of the most delightful books I ever read was "Conversations on Chemistry," which came out in those years, and which my father bought, and read, and talked about, and which thus naturally attracted the attention of us boys. I found it particularly interesting. I remember the delight with which I found that the air was made of oxygen and nitrogen, or azote, and read the experiments which showed that one of these, oxygen, is essential to life, and at the same time, makes a part of everything sour, as was at that time thought; of the experiments which proved that water is composed of two airs, or gases, one this same wonderful oxygen, the other the not less wonderful hydrogen, which, while with oxygen it forms the comparatively heavy fluid, water, is the lightest substance known—sixteen time lighter than oxygen, which is itself but little heavier than common air.

I began immediately to think of the air, and what was floating in it. The clouds, as we boys found, from our "Conversations," were water raised into the air by the power of the heat of the sun. How much we talked, as we were working together, of these wonderful facts, and of the beautiful colors which the light of the sun, falling upon the clouds at all parts of the day, and especially towards evening, formed there. Then with what delight we read of the experiments upon heat, of its being condensed by a lens and reflected by a mirror, of its being absorbed by dark surfaces and reflected by all, particularly by bright, polished surfaces, and of its being radiated continually, in straight lines, from every point, however minute, on all surfaces. How wonderful seemed to us the changes made by heat, first of snow and ice into water, next of water, gradually raised to the point of boiling, and then, by that process, turned into visible vapor, and by still more heat, into invisible gas. With what interest we watched the tea-kettle when it was boiling, and observed that the vapor, rushing hot and invisible from the nose, became visible at the distance of a few inches, by being cooled by the surrounding air. And how curious and wonderful it seemed to us that all plants and the greater

part of the bodies of all animals were made up, almost entirely, of oxygen and of carbon, of the same black substance we call charcoal, and that the greater part of the material for the formation of plants was always floating in the air as a gas made of carbon and the wonderful oxygen; that the rain dissolved or absorbed it and brought it down, and the radicles of plants drank it in from the soil. What an interest this gave to our examination of the roots of the weeds we pulled up and of the garden vegetables we removed in trimming them.

What an amount of pleasant conversation these chapters produced on us boys; perfectly natural conversation, and which would have been occasioned by a similar cause, in any other two boys favorably situated, as we were. I was then twelve or thirteen years old; my brother four or five years older. Whoever will recall the thoughts of his own childhood, or listen to the questions of intelligent, inquisitive children, will find that questions far more profound than any of these are continually occurring to children at a much earlier age.

Such thoughts and questions as these were, however, at this time, occupying the minds of thoughtful, scientific men in all parts of the civilized world. The discovery of oxygen, made by Priestly in 1774, and by Scheele and Lavoisier soon after, followed by the discovery of the composition of the atmosphere and of part of what it contains, of that of water and of the action of oxygen upon the metals and upon almost all other substances, has made a change in many of the arts, and pursuits, and investigations of men, greater than has ever been produced by any other discovery recorded in the history of science.

We boys considered the "Conversations" the most entertaining book we had ever read as interesting as "Keeper's Travels" had been, more interesting than "Pilgrim's Progress," and more intelligible, as interesting, but in a very different way, as the Arabian Nights' Entertainment." It seemed to explain to us the secrets of nature, and gave a new and more beautiful aspect to the earth, the waters, the air, the clouds, and to all that was living above and beneath them.

I see no reason why all other boys, and girls, too, should not enjoy the same privileges that we did in this respect. We cannot present them all with a copy of the "Conversations on Chemistry," and I much fear that there is no book so well suited to give an idea of the elements of chemistry, so changed now, as that book did when it was written. But books might be found and introduced into school,—into all the schools,—which should explain, so that all children might understand, what the air is, what water is, what thunder and lightning are, what heat and light are, what the common rocks are, what the soil is and how plants and animals grow. Ought not all persons to be acquainted with those things?

Is not this knowledge really essential to every well informed, intelligent being? And is not the age of boyhood and girlhood the most proper age for such knowledge to be acquired? I repeat that whoever will listen to the questions which are almost always asked by intelligent children, will find that all such children are instinctively longing for just this kind of knowledge. The Creator of the world and of its wonderful and beautiful laws, is the Creator of the mind of man, and He has, in His infinite wisdom, adapted the faculties of the mind to the easy, and delightful, and early attainment of this knowledge. Ought not children, therefore, whenever they are so situated as to make it possible, to be introduced, as early as nature indicates, to something of this knowledge, at least to its elements? Ought they not to be led to understand how wonderful, and beautiful, and excellent is the world in which God has given them their life?

How this may be done, in the common schools of New England, I shall endeavor to show in my next communication. G. B. E.

For the New England Farmer.

THE "POP CORN" CROP.

MESSRS. EDITORS:—I have often thought it not a little singular that our farmers, and others with small pieces of land to cultivate—especially those with large families of children—should pay so little attention to the cultivation of the small white corn, usually called "pop corn." I suppose the main reason for this inattention to be the common supposition that the crop is a small one, compared to that of other corn. I think this is a mistake. My own experience, small though it be, leads me to the contrary opinion. The present season, on a little less than five hundred square feet of land, I have raised nearly two bushels of ears, or about one bushel shelled, of this corn.

This is at the rate of about eighty-eight bushels to the acre; and it was apparently no better crop than I have raised before. True, the corn is small; but then it may be planted much nearer in the hill than other varieties, and it possesses the peculiarity of yielding generally two, and sometimes three ears to the stalk. The stover of this corn is also much finer and more acceptable to cattle than some of the other varieties.

As an article of diet, parched corn is one of the simplest forms of unleavened bread. It can hardly be otherwise than wholesome. Children, though they may not "cry for it," as they are reported to do for sugar-coated pills, are almost universally fond of it; and it is so very light that there is little danger of over-eating it. When wheat flour is ten dollars per barrel there certainly must be general economy in feeding children, and adults as well, on grain which yields eighty-eight bushels to the acre.

There is another consideration. The reason why this corn expands or "pops" so freely is undoubtedly the fact that it contains a much larger share than usual of vegetable oil. This adapts it peculiarly to the fattening of poultry; and I very much doubt whether those farmers who grow poultry for market can find any other crop so profitable for that purpose as this kind of corn. The kernels are so small that they must be more easily digested than the coarse kernels of Western and Southern corn, so frequently fed out to poultry. E. C. P.

Somerville, 1863.

THE American horse nail company at Providence have invented a steam spading machine which will do the work of fifteen yoke of cattle, requiring only a man and a boy to operate it. It consumes a quarter of a cord of wood a day.

For the New England Farmer.

APPLES EVERY YEAR.

As far as my memory goes back, I recollect my father grafted quite a large-sized apple tree, inserting some twenty grafts, more or less. The scions he procured from a neighbor's tree, noted for its bearing a very full crop every other year, of excellent quality for that period. When not the bearing year not an apple was to be found upon it. The result of his grafting was, that all the scions inserted upon the northerly side of the tree grew finely the first season and afterwards, while those upon the south side did not live. The next spring he procured more scions from the parent tree and regrafted the south side, and with perfect success. At the proper time he was rewarded with a full crop of apples on the northerly side of the tree—the year following a full crop from the southerly side, and not one on the northern. From that time to the present (about fifty years) the tree has given a crop of apples every year, alternating regularly, first the north, then the south side—not an apple to be found on the sides when not the bearing year.

There is one instance in my neighborhood of similar habit. A large tree, great bearer every other year, with the exception of one large limb, on which not an apple can be seen the bearing year. The following year this limb is bent down with apples, while not one can be found upon the other part of the tree. This tree I have carefully observed for the past twelve or fifteen years, and have noticed no change in its alternations of bearing. Its history I have not been able to learn.

Having been a constant reader of your monthly *New England Farmer* from its first to this date, and having had many an intellectual feast therefrom—and never having given anything in return therefor, except dollars and cents, I therefore feel somewhat indebted to you—hence the above.

Joppa, Mass., Nov. 23, 1863. R. C.

REMARKS.—The dollars and cents are essential, and so are such facts as you have communicated. Please write again.

WINTER CARE OF STOCK.

No man can afford to let his cattle shrink during the winter—though nine out of ten manage precisely in a way best calculated to bring about that very result. The mere keeping the breath of life in them, by dealing out poor or scanty rations, is one of the most miserable pieces of economy a herdsman can practice. The man who tries to see how little fodder he can keep his cattle on, is "saving at the spile and wasting at the spiggot." Though in the spring he might console himself with the reflection that it had cost him but little, comparatively, to get his cattle through, yet their emaciated forms and skeleton appearance could not add much to his peace of mind, nor their depreciation in actual value to the contents of his pocket, either present or prospective, To be sure, such management must be adopted as will insure the consumption of the coarser kinds of fodder early in the season, but in our zeal to get rid of this we commit a fatal error.

The effect of the change from grass to hay is great upon the system—especially if put immediately and wholly upon *poor* hay. And if we wish to keep our animals in a growing and thriving condition, there should be no check at this period. Let it be understood that every pound shrink is so much *lost*. It is lost outright to everybody and everything, and may be put down among those misfortunes classed as "*dead* losses." If we view this matter aright, it is not improbable that the losses within this State from the mismanagement of stock, is scarcely less than its taxes.

What we wish especially to impress in this connection upon the reader is the importance of a *variety* in feed. That is to say, cattle should not be put upon one kind of fodder, exclusively—especially upon poor fodder. Let the hay and the straw and the corn fodder be alternated, and each will be consumed with a better relish. Above all, let every animal have at least one foddering a day of as good hay as the barn affords, and then,—

1st. Feed regularly and with sufficient quantity.

2d. The daily allowance should be made up of as large a variety as the barn affords.

3. Easy and frequent access should be had to pure water.

4th. Every possible means should be adopted to administer to their comfort, in protecting our animals from the inclemencies of the weather—which shall include a constant and liberal supply of bedding of some sort, if nothing but sand.—*N. H. Journal of Agriculture.*

FIXING UP.

Yes, that's the word. We can find no better term to express the idea which we wish to bring before your mind's eye. "Fixing up" is a good term; it refers to acts which comprise those dozen-and-one little, comparatively insignificant things which are too often omitted, and which in the aggregate, after all, affect our well-being wonderfully.

This is the season of the year for "fixing up," here a little and there a little; our fields, our gardens, our barns and our houses—a rail or a stake in a weak fence, a couple or so of young trees in place of those dead ones in the orchard—a load of boughs for covering plants and vines in the garden, a load or two of kindlings for the wood-shed, a shingle or board on the barn or outhouses, several panes of glass in the different buildings; fix up the pump at the barn and house; look out for your tools which you have done using for the season; in a word see to all those little things of which you know more than we do, and not let the cold, north winds of early winter find you unprepared to meet them. We repeat it, "fix up generally," and don't be caught napping. —*Maine Farmer.*

A DESTRUCTIVE DOG RAID.—The Hartford *Times* says that a flock of 34 fat sheep, kept about two miles below the city, were nearly destroyed one night last week by a pack of ferocious dogs. The dogs got into the enclosure and succeeded in killing a very valuable watch dog—a regular fighting "bull"—which was chained there, and then slaughtered most of the sheep. Out of thirty-four only seven could be found the next morning. The dogs had driven the flock half a mile up the road to the slaughter house, leaving their mangled carcasses strewn along the way. Twenty-one mangled carcasses were found, and six are missing.

LADIES' DEPARTMENT.

THE SONG OF SEVEN.

BY JEAN INGELOW.

I leaned out of window, I smelt the white clover,
Dark, dark was the garden, I saw not the gate;
"Now if there be foot-steps, he comes, my one lover—
Hush nightingale—hush! O, sweet nightingale, wait
Till I listen and hear
If a step draweth near,
For my love he is late!

"The skies in the darkness stoop nearer and nearer,
A cluster of stars hangs like fruit in the tree,
The fall of the water comes sweeter, comes clearer;
To what art thou listening, and what dost thou see?
Let the star-clusters glow,
Let the sweet waters flow,
And cross quickly to me.

"You night-moths that hover, where honey brims over
From sycamore blossoms, or settle or sleep:
You glow-worms shine out and the pathway discover
To him that comes darkling along the rough steep.
O, my sailor, make haste,
For the time runs to waste.
And my love lieth deep—

"Too deep for swift telling: and yet my one lover,
I've conned thee an answer, it waits thee to-night"
By the sycamore passed he, and through the white clover,
Then all the sweet speech I had fashioned took flight.
But I'll love him more, more
Than e'er wife loved before,
Be the days dark or bright.

For the New England Farmer.

A SUBSTITUTE FOR PURE COFFEE.

Coffee is now so expensive that most families are seeking for some substitute. I find nothing so much like the genuine article as a mixture of the best coffee with barley in equal parts. We buy this mixture for twenty-five cents a pound. It is roasted together so that the barley is thoroughly impregnated with the flavor of the coffee, and the coffee thus made is better than much that is made from pure coffee at forty-five cents a pound. The patent roasters where the aroma is preserved are a great improvement upon the old way of browning, especially when it is important to secure as much of the flavor as possible. I have never known any who have tried this substitute to be dissatisfied with it, and I give it for the benefit of those who like coffee, but think they cannot well afford to drink it. ANNA HOPE.

THE LITTLE FOOTPRINT.

"What a beautiful place!" said I to myself, as I walked out in the garden and grounds of my friend. It was early in the morning, when the dews were on the flowers, and the rays of the new sun were just glinting through the trees, and the birds were fluttering and singing in their gladness. The walks were smooth and perfect, and if there were fairies in those days, I felt sure they would love to dwell here. In the laying out of the grounds and in the choice and cultivation of the flowers, nothing was to be desired more perfect. In one of the walks among the flowers, I noticed a large flower pot, turned bottom upwards. It seemed in the way, and out of place, and I wondered at the carelessness of the gardener who had left it there. But perhaps there was a reason for it. So I stooped down and carefully lifted it up, and there in the soil, plain to be seen, was the *footprint of a little child!* Then I understood it all! The little one, more precious than all these flower grounds, the only child, had lately been carried away by unseen hands! It was among the dead; and the mother, in her walks, had found the print of its little foot, and had carefully (O, how carefully) covered it with this flower pot. How often she had lifted it with tears, can never be known. But I felt I had almost done a wrong to lift it up. It was not for my eye.

O, mother! who but He who created the heart can know anything of the agony which thou hast felt? They call thee childless! But it is not so! When in thy dreams thou stretchest out thy arms for the little one, the heart feels it. When thou sittest down, its beautiful face is in thy memory; and when thou walkest forth, its little footsteps patter by thy side. It lives fresh and green in thy memory, and will never cease to live there. Other mothers will have all their children grown up and passed out of childhood, but thou wilt never be without a little child! Thou mayest live and grow old it may be, but the child will live *a child still*, just as it drooped and withered in thy arms—a child still, till thou meetest it in heaven. These bright and early dead, how we love them! The golden tresses of childhood seem to wave before our eyes, and the tones and echoes of their voices seem to ring in our ears, so long as we live!—*Rev. John Todd.*

A DARK HOUSE.—A dark house is always an unhealthy house, always an ill-aired house, always a dirty house. Want of light stops growth, and promotes scrofula, rickets, &c., among children. People lose their health in a dark house, and if they get ill they cannot get well again in it. Three out of many negligences and ignorances in managing the health of houses generally I will here mention as specimens. First, that the female head in charge of any building does not think it necessary to visit every hole and corner of it every day. How can she expect that those under her will be more careful to maintain her house in a healthy condition than she who is in charge of it? Second, that it is not considered essential to air, to sun and clean rooms while uninhabited; which is simply ignoring the first elementary notion of sanitary things, and laying the ground for all kinds of diseases. Third, that one window is considered enough to air a room. Don't imagine that if you who are in charge don't look to all these things yourself, those under you will be more careful than you are. It appears as if the part of the mistress was to complain of her servants and to accept their excuse—not to show them how there need be neither complaints nor excuses made.—*Florence Nightingale.*

DELICACY IN CONVERSATION.—A maxim of Bruyere's is going the rounds of the English newspapers. It will do for any locality:

"There is speaking well, speaking easily, speaking justly and speaking seasonably. It is offending against the last to speak of entertainments before the indigent; of houses and lands before one who has not so much as a dwelling; in a word, to speak of your prosperity before the miserable. This conversation is cruel, and the comparison which naturally arises in them betwixt their condition and yours is excruciating."

SHOW can easily be purchased; but happiness is always a home-made article.

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CATTLE MARKETS FOR DECEMBER.

The following is a summary of the reports for the five weeks ending December 16, 1863:

NUMBER AT MARKET.

	Cattle.	*Sheep.*	*Shotes.*	*Fat Hogs.*
Nov. 18.....	3449	6900	175	2000
" 25.....	1706	3326	80	1800
Dec. 2.....	2357	4715	75	3500
" 9.....	3350	6436	260	2500
" 16.....	3019	6051	62	1062
Total....	13,881	27,428	652	9,862

The following table exhibits the number of cattle and sheep from each State for the last five weeks, and for the corresponding five weeks last year; also the total number since the first of January, of each year:

	THIS YEAR.		LAST YEAR.	
	Cattle.	*Sheep.*	*Cattle.*	*Sheep.*
Maine.....	2733	4932	2678	5446
New Hampshire.....	1827	3797	1950	1763
Vermont.....	4387	10,052	6018	7989
Massachusetts.....	275	661	353	444
Northern New York.....	559	1852	657	1746
Western States.....	3176	1287	1409	438
Canada.....	924	4847	548	5540
Total, last five weeks.....	13,881	27,428	13,620	23,366
Total, since Jan. 1, (51 w'ks.)	108,030	242,184	97,549	229,230

PRICES.

	Nov. 18.	*Nov.* 25.	*Dec.* 2.	*Dec.* 9.	*Dec.* 16.
Beef, 1st, 2d, 3d qual...	5 @8	5 @8¼	5¼@8¼	5¼@8¼	5¼@8¼
" ex. and premium.	8¼@9	8¼@8¾	8¼@9	8¼@9¼	8¼@9
Sheep & lambs, each..	$3¼@5	$3¼@5½	$3¼@5¾	3¾@6	$3¾@6
" (old) ₩ lb.....	5¼@6	5¼@6¼	5¼@6¼	5¼@6¼	5¼@6¼
Swine, stores, w'sale....	5 @7	7 @7¼	—@—	5¼@6	@7
" " retail....	5½@8	7 @8½	6 @8	6 @7½	7½@8½
Live fat hogs.....	6 @6½	6 @6½	6½@7	6¾@7	6¾@7
Beef hides, ₩ lb.....	8¼@9	8¼@9	8¼@9	8¼@9	8¼@9
Pelts, sheep & lambs.	$2 @2¼	$2 @2¼	$2 @2¼	2 @2½	$2 @2¼
Tallow, ₩ lb.....	8 @8½	8 @8½	8 @8½	8 @8½	8 @8½

REMARKS.—Although there were more cattle than could be sold at two or three of the foregoing makets, prices have been pretty well sustained, except for ordinary or premium beef; but they have not advanced, as many predicted they would do after the store cattle season was over. It will be noticed that the number from the West is more than twice as large during the past five weeks as it was for the same time one year ago. The quality of the stock is also as much poorer as it is more numerous. The 926 at market Dec. 16th were uncommonly slim. Indeed, the straight, fat Western steers of two years ago, are not to be seen at all at Brighton this year, notwithstanding the high prices that are paid for extra beef, and indeed for all kinds of meats. The following are the prices for extra beef, mutton and pork on Thanksgiving week of the past three years:

	1863.	1862.	1861.
Beef extra.....	8½@9	6¾@7	6¢
Sheep, live weight.....	5¾@6¼	4¾@5¾	4¼@4½
Pork, " "	6¾@7	5	4 @4½

The last market was overstocked with both cattle and sheep. Some 700 head of cattle were probably unsold Wednesday night, and many sheep were left in the hands of the hands of the butchers to be disposed of on the best terms possible.

SPRUNG KNEES IN THE HORSE.—The trouble does not always result from an injury of the leg, or strain of the tendons; it is more often found in horses that have bad corns in the feet, or troubled with navicular disease, than in any other. The animal raising his heels to prevent pressure upon the tender parts, bends the knee, which bending becomes finally, from the altered position of the limb, a permanent deformity. Horses with sprung knees are unsafe for saddle purposes, owing to their consequent liability to stumble.

Respecting the treatment, it may be said that six out of every ten sprung-kneed horses will be found to have corns. If these be of recent growth, there is a fair prospect of straightening the limbs by removing the corns as directed under the head of that disease; by the removal of these the heels are brought to the ground, and the limb becomes straight. Under any other circumstances all treatment proves useless.—*Jennings on the Horse.*

AMONG the novelties of the age is a seedless apple. A tree has been found in Dutchess county bearing this fruit. There are no blossoms; the bud forms and without any show of petals, the fruit sets and grows entirely destitute of seeds. In outward appearance the apples resemble Rhode Island Greenings.